Graymont Western U.S., Inc.
Cricket Mountain Project, Utah

Notice of Intention to Amend Mining Operations
Allsop Quarry

GRAYMONT

Graymont Western, U.S., Inc.
3950 South 700 East
Suite 301
Salt Lake City, Utah 84107

Prepared by:

SRK Consulting
Engineers and Scientists

SRK Consulting (U.S.), Inc.
1250 Lamoille Highway, Suite 520
Elko, Nevada 89801

Revised January 2006
October 2005
SRK Project No. 57728

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1. INTRODUCTION AND GENERAL INFORMATION

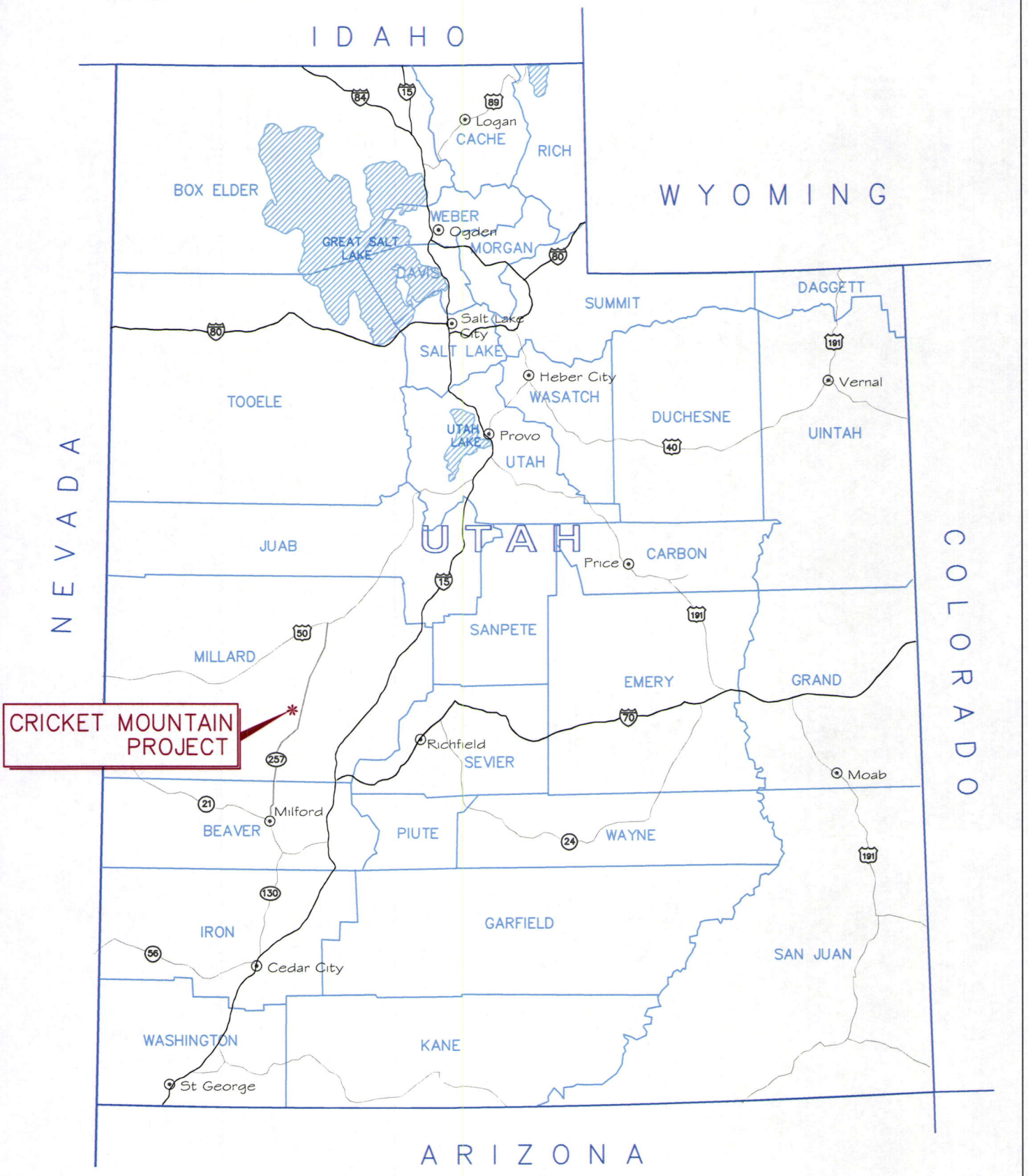
The Cricket Mountain Mine is an existing limestone mining and processing operation located in west-central Utah. The Mine is owned and operated by Graymont and consists of a limestone quarry, overburden disposal sites, screened undersize material stockpiles, haul roads, a processing plant, and ancillary facilities located on unpatented mining claims on public lands administered by the United States Department of the Interior, Bureau of Land Management (BLM), on lands leased from the State of Utah, and on private lands owned by Graymont Western U.S., Inc. (Graymont). The general location is shown on Figure 1. The Mine received approval of its Plan of Operations from the Warm Springs Field Office in Fillmore, Utah. A Notice of Intention (NOI) for the existing Project was approved by State of Utah, Division of Oil, Gas and Mining (UDOGM) on January 1, 1981 (M/027/006). Additional NOIs have been subsequently filed.

A *Notice of Intention to Amend Large Mining Operations* was submitted in June 2004 for the East Allsop Quarry with associated haul roads to the future Allsop Quarry. The expansion included the development of previously disturbed private land for a small quarry and haul roads. A suitability test determined that the limestone in this quarry will make a saleable product; as such, the larger Allsop Quarry is proposed in this NOI. This NOI supercedes and encompasses the East Allsop NOI; operating and reclamation practices described in the East Allsop NOI are incorporated by reference into this document unless specifically stated otherwise.

Mining on Utah state lands is permitted under the Utah Mined Land Reclamation Act of 1975, Title 40, Chapter 8 of the Utah Code Annotated as amended (Utah Reclamation Act). The Minerals Reclamation Rules (R647-1 through R647-5) are enforced by UDOGM.

The proposed Allsop Quarry will provide limestone for commercial use. Limestone will be mined and transported to the existing facilities at the Poison Mountain site by a haul road previously permitted with the East Allsop NOI.

This NOI is prepared in accordance with UDOGM R647-1 through R647-5 rules for submittal. The NOI includes a general description of the proposed expansion, operating



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	DRAWN	dftg	6/05
	CHECKED		
	APPROVED		

REVISIONS	No.	DESCRIPTION	BY	DATE

FIGURE 1

GRAYMONT WESTERN U.S. INC.

CRICKET MOUNTAIN PROJECT
MILLARD COUNTY, UTAH

LOCATION MAP

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: AS SHOWN	REVISION
JOB NO. 57728 DWG NAME 57728-101	A

R10W R9W R9W R8W

EXISTING QUARRY
EXISTING DISTURBANCE

EXISTING QUARRY ACCESS ROAD

FLAT IRON QUARRY

NORTH LOBE QUARRY

EXISTING POISON MOUNTAIN QUARRY

BB DOLOMITE QUARRY

CRICKET MOUNTAIN PROCESSING PLANT

CRICKET SEEPS

CRICKET MOUNTAINS

FILLMORE WASH

FILLMORE CANYON

POISON MOUNTAIN

BROADMOUTH CANYON

BIG SAGE RESERVOIR

BIG SAGE VALLEY

LITTLE SAGE VALLEY

HALLS DOUBLE RESERVOIR

ST. HWY. 257

UNION PACIFIC RAILROAD

Borden

Bloom

BEAVER RIVER

T 21 S

T 22 S

EXPLANATION

- PROPERTY BOUNDARY
- STATE LAND
- EXISTING QUARRY AND ASSOCIATED DISTURBANCE
- EXISTING QUARRY FACILITY
- EXISTING WASTE ROCK FACILITY
- EXISTING SOIL STOCKPILE

0 2000 4000
FEET

REFERENCE			
DESIGNED	VS	3/04	
DRAWN	draft	6/05	
CHECKED			
APPROVED			

REVISIONS	No.	DESCRIPTION	DATE

FIGURE 2

GRAYMONT WESTERN
CRICKET MOUNTAIN PROJECT

EAST ALLSOP QUARRY
EXISTING FACILITIES

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: 1"= 4000'
REVISION

JOB NO. 57728
DWG NAME 57728-102

A

procedures, reclamation, measures to be taken to prevent unnecessary or undue degradation as well as measures to be taken during extended periods of non-operation.

1.1 Applicant Information

Graymont Western U.S., Inc.
3950 South 700 East
Suite 301
Salt Lake City, Utah 84107

Contact: Robert Robison
Phone: (801) 264-6878
Fax: (801) 262-9396

1.2 File Number

The previously assigned UDOGM file number for the Cricket Mountain Mine is M/027/006. The latest approved revision to M/027/006 is dated July, 2004.

1.3 Location of Proposed Activities

The Mine is located approximately 32 miles southwest of the city of Delta, in Millard County, Utah. The Cricket Mountain Plant is located west of Highway 257 near Bloom Siding in Section 36, Township 21 South (T21S), Range 9 West (R9W) and Section 1, T22S, R9W. The existing limestone quarry can be reached by traveling six miles west of the Plant (Figure 2). The Allsop Quarry and associated facilities will be located in sections 19, 24, and 30, T21S, R9W, and Section 25, T21S, R10W, within the area of the U.S. Department of the Interior Geologic Survey (USGS) 7.5 minute series topographic map of the Candland Spring Quadrangle. Access to the existing quarry and plant facilities is by an improved unpaved road.

1.4 Ownership of Land Surface and Minerals

The proposed quarry and roads will be located on private land owned by Graymont; no mining will occur on state or federal lands.

1.5 BLM Project File Number

Not applicable. The proposed project does not occur on land administered by the BLM.

1.6 Project Disturbance

A portion of the proposed Project Area has been previously disturbed by the prior operator.

1.7 Project Schedule

Development of the Allsop Quarry will begin as soon as permits are approved. Production is planned to begin in December 2005.

E 5,000 E 6,000 E 7,000 E 8,000 E 9,000 E 10,000 E 11,000 E 12,000 E 13,000 E 14,000 E 15,000 E 16,000

N. 24,000 N. 23,000 N. 22,000 N. 21,000 N. 20,000 N. 19,000 N. 18,000 N. 17,000 N. 16,000 N. 15,000

24 19 30 25

EAST OVERBURDEN DISPOSAL

TOPSOIL STOCKPILE #2

EXISTING QUARRY

EXISTING DISTURBANCE

WEST OVERBURDEN DISPOSAL

EAST HAUL ROAD

TOPSOIL STOCKPILE #1

WEST HAUL ROAD

EXISTING QUARRY ACCESS ROAD

FLAT IRON QUARRY

UNDERSIZE MATERIAL STOCKPILE

NORTH LOBE

OVERBURDEN DISPOSAL AREA #2

UNDERSIZE MATERIAL STOCKPILE

CRUSHER

SCREENED STONE

OVERBURDEN DISPOSAL AREA #4

PRE-EXISTING POISON MTN QUARRY

CRUSHER

UNDERSIZE MATERIAL STOCKPILE

BB DOLOMITE QUARRY

KILN STONE STOCKPILE

LEGEND

- ALLSOP QUARRY
- PROPOSED STOCKPILES
- PROPOSED OVERBURDEN DISPOSAL SITE
- PROPOSED UNDERSIZE MATERIAL STOCKPILE
- EXISTING STOCKPILE
- EXISTING ALLSOP QUARRY AND ASSOCIATED DISTURBANCE
- EXISTING ALLSOP QUARRY FACILITY
- EXISTING WASTE ROCK FACILITY
- EXISTING DIRT ROAD
- EXISTING STOCKPILE

0 500 1000
FEET

REFERENCE			
DESIGNED	VS	2/04	
DRAWN	draft	6/05	
CHECKED			
APPROVED			

REVISIONS	No.	DESCRIPTION	DATE

FIGURE 3

GRAYMONT WESTERN U.S. INC.
CRICKET MOUNTAIN PROJECT

ALLSOP AREA QUARRY
PROPOSED FACILITIES

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: AS SHOWN
REVISION: A

JOB NO. 57728
DWG NAME 57728-103

1.8 Approvals and Permits

This NOI is based on the *Modification to Plan of Operation and Notice of Intention to Revise Mining Operations* dated April 1996 and the *Notice of Intention to Revise Mining Operations East Allsop Quarry* dated June 2004.

2. Operation Plan

2.1 Overview of Proposed Expansion

The Cricket Mountain Mine presently consists of limestone quarries (Poison Mountain Quarry, BB Dolomite Quarry, and West Quarry areas), a processing plant (Cricket Mountain Plant) and ancillary facilities. The quarry operations consist of the excavation of high calcium limestone from outcropping deposits, crushing and sizing the stone near the quarry, and transporting the crushed and sized limestone to the Plant located six miles east of the quarry. Components associated with the mine include haul roads, quarries, overburden disposal sites, undersize material stockpiles, soil stockpiles, and a crusher. The Plant consists of rotary kilns which produce quicklime by high temperature calcination of the limestone. Current lime production capacity at the Plant is 3,040 tons per day (tpd). Quicklime is the ultimate commercial product from the operation and is used for industrial and chemical purposes, such as pH control and fluxing. The existing operations are shown on Figure 2.

Limestone from the Allsop Quarry area was previously mined by the Interstate Brick Company. Approximately 19.9 acres within the Project Area were disturbed and never reclaimed. Graymont has determined that a saleable limestone product can be produced during a test burn conducted during 2004 and 2005. Limestone in the Allsop Quarry will be added to the existing Cricket Mountain reserves. Table 2-1 presents the 2004 bonded acres and the proposed disturbance for the Allsop Quarry. All prior disturbance associated with the *East Allsop Notice of Intention* is encompassed by the proposed Allsop Quarry disturbance. The disturbance that will be bonded under this action includes both the 2004 bonded acres and the proposed disturbance.

Table 2-1 Existing Bonded Disturbance and Proposed Disturbance

Facility	2004 Bonded Disturbance	2005 Proposed Disturbance	Total Proposed Disturbance
East Allsop Quarry	6.3	0.0	6.3
Allsop Quarry	0.0	110.0[1]	110.0
Overburden Disposal Sites	0.0	29.7	29.7
Roads [2]	11.1	-3.0	8.1
Topsoil Stockpiles	0.7	0.9	1.6
Undersize Stockpiles	0.0	8.3	8.3
Kiln Stone Stockpile	2.0	2.0	4.0
Total	20.1	147.9	168.0

[1] 9.8 acres were disturbed by a previous operator.
[2] Roads outside of the quarry boundary have been previously authorized. Three acres of existing road, previously outside of the East Allsop Quarry footprint, have been transferred to the quarry category.

2.2 Site Preparation

Where available and safe, soils will be stripped from quarry and stone stockpile areas and salvaged for use as growth media during reclamation. Where feasible, vegetation growing on areas containing salvageable soils will be removed and stored in the growth media stockpiles to contribute organic matter to the soils.

Very limited soil resources exist within the Allsop Quarry footprint due to the nature of the outcrop and previous mining activity. The absence of soil resources in these areas was confirmed by Mr. Paul Baker (UDOGM) on February 19, 2004 during a site inspection. Dr. Gary Back (SRK) also conducted a site reconnaissance in May 2004 and confirmed that, in general, soil resources were limited in most areas. See Appendix A for more detailed information.

A previously authorized growth media stockpile will be moved to make room for the proposed undersize stockpile; the growth media will be moved to the south and placed on a previously approved area.

2.3 Mining Operation

2.3.1 Quarry

Based on the current knowledge of the limestone deposit, conventional bench type mining methods similar to those currently used at the Poison Mountain Quarry will be used to extract ore and overburden. Drilling and blasting will be used to break the rock, and the ore will be loaded into haul trucks with a front-end loader and transported to the crusher. Overburden will be sent to either the East or West overburden disposal sites. The quarry will operate 24 hours per day, seven days per week.

Blasting will occur as needed to sustain production. Blasting will be limited to daylight hours. Explosives will be stored at existing facilities.

Pit design will be based on Graymont's experience at the existing Poison Mountain Quarry and on surface mining industry standards. Benches will be developed to ensure maximum recovery of ore. Bench faces in the existing quarry are commonly 30 feet high and benches

400 to 600 feet wide. Berms will be constructed to restrict access to highwalls that may occur due to mining.

The proposed Allsop Quarry is shown on Figure 3. As presently planned, the proposed quarry will disturb about 110 acres. The elevation of the existing surface ranges from about 5,300 to about 5,625 feet. Approximately ten million tons of limestone ore and 2.4 million tons of overburden will be excavated from the Allsop Quarry over the projected life of six years.

2.3.2 Slope Stability

The limestone is comprised of competent material that forms cliffs in the surrounding area. Based on experience at the Poison Mountain Quarry and natural topographic features in the area, it is anticipated that highwalls constructed in limestone will be stable.

2.3.3 Overburden Disposal Areas

Up to 2.4 million tons of overburden will be stored in either the East or West overburden disposal area; each area will store approximately 1.2 million tons. Prior to end-dumping overburden, growth media will be salvaged and stockpiled where practical and safe. No sulfide minerals have been identified in any of the materials to be excavated. Figure 4 presents typical overburden cross-sections.

The disposal areas will be constructed by dumping in lifts in valleys or on hillsides. Overburden disposal areas will be built with lifts approximately 40 feet high offset by benches approximately 25 feet wide.

2.3.4 Ore Crushing and Screening

A crusher will be used to crush and screen limestone hauled from the Allsop Quarry to a nominal size of minus 2½ inches by plus 3/16 inch. Crushed ore will be stockpiled near the crusher and/or hauled on the existing Poison Mountain Quarry-Cricket Mountain Plant haul road approximately six miles east to the Plant.

2.3.5 Screened Undersize Material Stockpiles

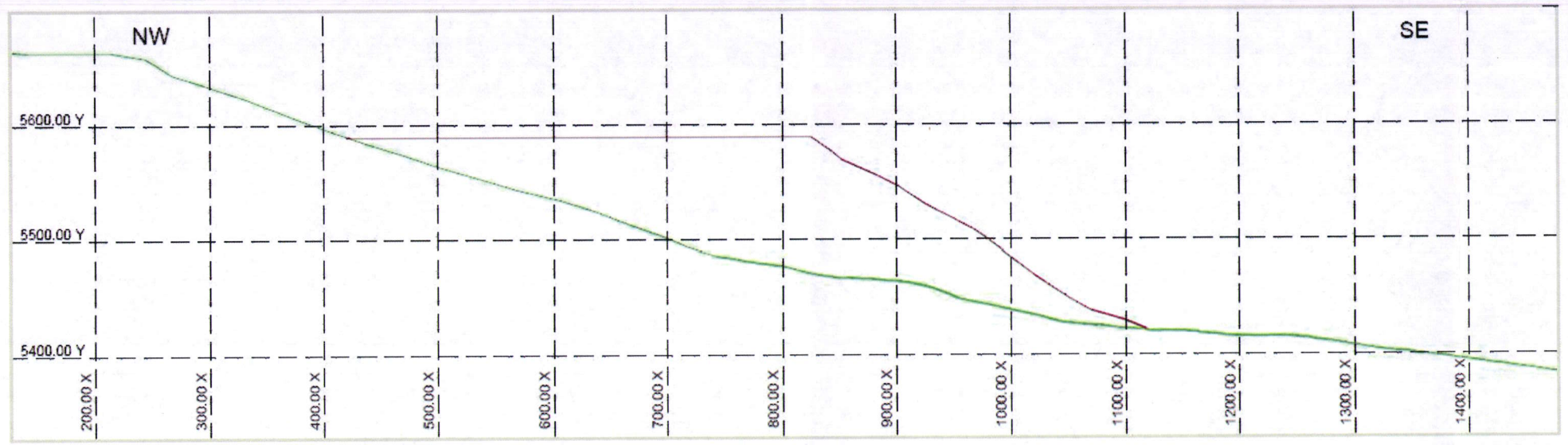
Screened undersize material will be stockpiled on the existing Poison Mountain undersize stockpile (as shown on Figure 3) or in the newly permitted stockpile area.

2.3.6 Haul/Access Roads

No new hauls roads will be constructed as part of the proposed activities. Graymont will use previously authorized haul roads.

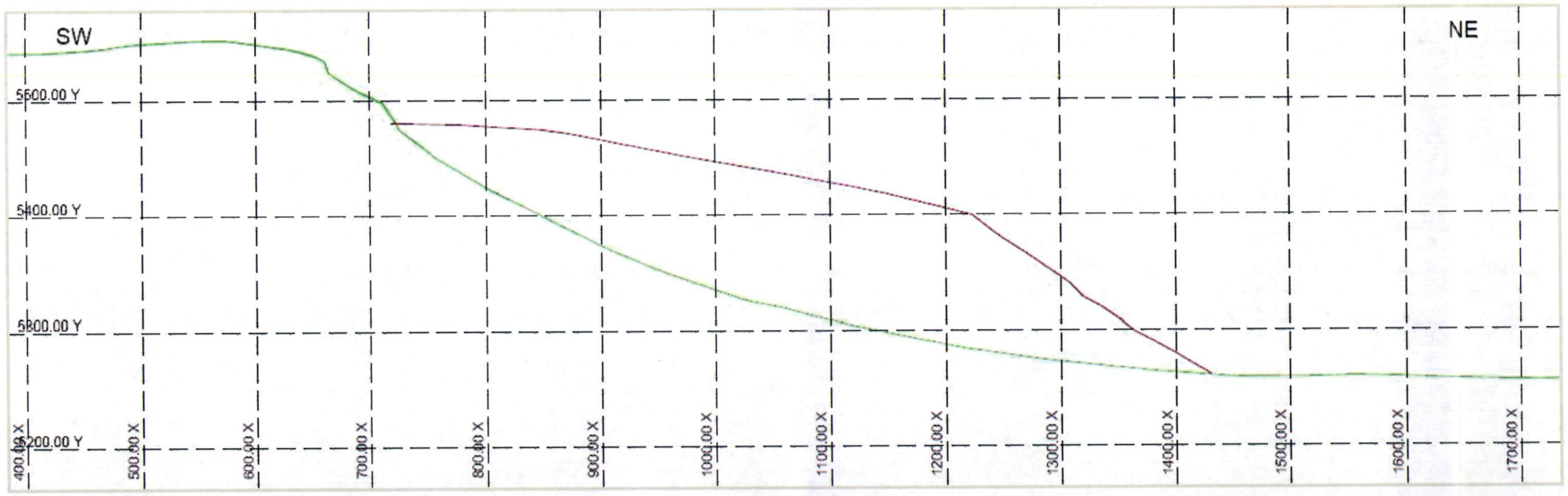
The haul roads were constructed to safely accommodate haul trucks and meet MSHA requirements with safety berms on the outside edge and internal drainage ditches. Culverts or swales were constructed across drainage crossings. The existing Poison Mountain Quarry-Cricket Mountain Plant access/haul road will be used to haul crushed and screened Allsop Quarry ore from the crusher. Use of the road was approved in 1979 as an 80-foot ROW (U.S. BLM 1996). The crushed ore will be hauled by off-highway trucks of up to about 110-ton capacity from the crusher area to the Plant on a schedule of seven days per week. The production schedules require up to 154,000 tons per month of crushed ore to be hauled to the Plant; this may require 64 truckloads per day.

1



WEST OVERBURDEN DISPOSAL AREA

2



EAST OVERBURDEN DISPOSAL AREA

REFERENCE	DESIGNED	VS	2/04
	DRAWN	draft	6/05
	CHECKED		
	APPROVED		
REVISIONS	No. DESCRIPTION		DATE

FIGURE 4

GRAYMONT WESTERN U.S. INC.
CRICKET MOUNTAIN PROJECT

CROSS-SECTIONS OF
OVERBURDEN DISPOSAL AREAS

SRK Consulting
Engineers and Scientists

SCALE: AS SHOWN
JOB NO. 57728
DWG NAME 57728-104

REVISION A

2.3.7 Soil Stockpiles

~~Soil will be salvaged where available within the proposed disturbance. Very limited soil resources exist at the Allsop Quarry due to the previous mining and the nature of the outcrop. Approximately 106,600 cubic yards of soil will be salvaged from the quarry area and stockpiled on new or existing stockpiles. The feasibility of salvage efforts will be determined by the thickness and amount of area covered by the soil. Small isolated pockets of soil may not be salvaged.~~

Salvageable soil including surface vegetation will be removed and stockpiled within the areas proposed for disturbance. Salvageable soil is defined as any surface material that is presently supporting plant growth with a thickness exceeding six inches. The six-inch depth is the practical limit to which the existing excavation and soil-recovery equipment can reasonably remove material. Graymont will use equipment from their on-site fleet to salvage topsoil; this equipment will include but not be limited to D8-class dozers, loaders, and haul trucks.

Very limited soil resources exist at the Allsop Quarry due to removal during previous mining (pre-Graymont) and the sparsely-covered nature of the outcrop. Graymont estimates that 113,100 cubic yards of soil may be available for salvage from the proposed disturbance and stored on new or existing soil stockpiles. About 10,500 cubic yards of soil were previously salvaged from the Allsop area during the construction of the West Haul Road. However, this total volume may change depending on the actual conditions encountered during operations. A variance will be sought if sufficient salvageable soil is not found on the 'disturbed' quarry area for replacement on the quarry benches.

Following stripping, soil will be stored in the stockpiles shown on Figure 3. The stockpiles will be contoured to minimize wind erosion, and revegetated with the interim seed mix used on the existing Poison Mountain soil stockpiles. Signs will be posted to prevent disturbance to the soil stockpiles. Some of the proposed disturbed areas are heavily infested with cheatgrass. Graymont will place the top few inches of stockpiled soil on the bottom of the pile, and evaluate treating the stockpiled soil with an herbicide to reduce the spread of cheatgrass. Soil stockpiles will be seeded the first fall after the soil is salvaged

2.3.8 Water Supply

An existing well near the Plant currently supplies water for the mining operations and processing facilities. Water use associated with the mining operations is generally limited to dust control on haul/access roads and disturbed areas, and during drilling and crushing operations.

The increased production associated with the Allsop Quarry may increase water needs for the mining operations; however, it is anticipated that the existing well production will be sufficient to meet the water needs.

2.3.9 Equipment Requirements

Graymont will reassign equipment from the existing operations to mine and haul ore from the Allsop Quarry. Plans include using three trucks currently working in the existing operations to haul ore from the quarry, and a Caterpillar 992 or 990-type loader used to load the trucks.

2.3.10 Project Work Force

The workforce at the existing quarry and Plant is currently approximately 50 people and will remain the same.

2.3.11 Blasting

Currently, an explosives magazine and a cap magazine for the Poison Mountain Quarry are located south of the crushing and screening facilities near the base of Poison Mountain. The magazines will remain in place for use during the Allsop Quarry operation.

Typically, ammonium nitrate and fuel oil will be used as blasting agents with other products depending on conditions. Blasting agents will be stored in compliance with applicable Bureau of Alcohol Tobacco and Firearms and Mine Safety and Health Administration (MSHA) regulations.

2.3.12 Fuel Storage and Use

Diesel fuel and gasoline are stored in above ground tanks near the permitted crushing and screening facilities at the Poison Mountain Quarry. The tanks are installed on concrete pads and surrounded by concrete berms to contain leaks, spills or ruptures of the tanks. Oil is stored inside a containment area within a building. These facilities will be used for the Allsop Quarry operation.

2.3.13 Sanitary and Solid Waste Disposal

Portable toilets will be used for sanitary waste at the proposed mining area. The toilets will be serviced by a licensed contractor. Used tires, scrap lumber, etc. will be stored in an existing "bone yard". No toxic or hazardous materials will be stored in these areas. All materials will be removed at closure and disposed of in an approved landfill.

2.3.14 Safety and Site Control

The Project will be permitted as a mining operation and will operate in conformance with applicable MSHA safety regulations (30 CFR 1-199). The access road to the proposed quarry area passes through the Plant site which operates 24 hours per day, seven days per week. Access through the Plant site to the access road is restricted to employees and authorized visitors.

2.3.15 Erosion and Sediment Control

Best Management Practices (BMPs) will be used to limit erosion and reduce sediment in precipitation runoff from Project facilities and disturbed areas during construction and operations. BMPs may include, but are not limited to: straw bale sediment traps, diversion ditches, and rock and gravel cover. Vegetation is also a BMP and may be used as a cover to reduce the potential for wind and water erosion. Following construction activities, identified areas will be seeded as soon as practical and safe.

Any sediment and erosion control measures will be visually inspected periodically. Maintenance will occur on a regular basis and repairs performed as needed.

2.3.16 Emission Control

Methods for controlling dust are specified in the air quality permit. Water application with the use of a water truck will be the primary method of dust suppression on haul roads and disturbed areas of the site. Speed limitations will also be employed for the haul roads. A chemical dust suppressant will be applied to the access and haul roads at intervals specified in the air quality permit. If practical, disturbed areas will be revegetated on an interim basis to minimize exposed surfaces.

2.3.17 Concurrent Reclamation

Concurrent reclamation reduces erosion, provides early impact mitigation and reduces final reclamation work. Graymont intends to optimize the amount of concurrent reclamation at the site. This will allow larger-scale testing of regrading, reclamation cover placement and revegetation techniques.

2.3.18 Cultural Resources

Graymont performed a Class III cultural resources inventory of undisturbed areas proposed for disturbance in February and March 2004. No sites eligible for the National Register of Historic Places were present (WCRM, 2004). Sites that may be considered potentially eligible for the National Register of Historic Places will either be avoided or mitigated in accordance with Section 106 procedures. If exploration activities uncover human remains, Graymont will follow procedures described in the Native American Graves Protection and Repatriation Act. Appendix B presents the results of the Class III Cultural Resources Survey conducted for the Project Area.

2.3.19 Wildlife

Prior to surface disturbing activities, Graymont employees will inspect the area for the presence of active raptor nests; past surveys did not indicate the presence of nests. Graymont would implement procedures to mitigate or avoid direct impact to nests in or near the Project area inhabited by raptors prior to the beginning of construction.

3. Impact Assessment

Rule R647-4-109 of the UDOGM Minerals Program requires the preparation of an impact assessment identifying potential surface and/or subsurface impacts. An EA was completed for the Cricket Mountain Project in April 1996 (BLM 1996). This environmental assessment can provide additional context for the impact assessment section of this revision.

3.1 Surface and Ground Water Resources

Surface water in the Project Area flows only in response to snowmelt or precipitation events. Graymont will install culverts and water crossings on roads as needed. BMPs will be used to control sediment to limit erosion and reduce sediment in precipitation runoff from Project facilities and disturbed areas during construction and operations as described in Section 2.3.14. No impacts are projected to surface water resources.

Groundwater occurs at a depth in excess of 300 feet below ground surface. The limestone does not contain any deleterious constituents that will affect groundwater quality. Graymont will use an existing well to supply water for dust control within existing authorized water use rates. No direct, indirect, or residual impacts are projected.

3.2 Wildlife

Wildlife that may be found in the area include mule deer, pronghorn antelope, black-tailed jackrabbit, desert cottontail, badger, coyote, bobcat, white tail antelope squirrel, chukar partridge, Cooper's hawk, American kestrel, northern harrier, rough-legged hawk, pinyon jay, mourning dove, black-throated sparrow, bats, and horned larks (BLM, 1996). Bats may inhabit caves in the upland cliffs.

Yearlong antelope habitat covers the Project Area (UDWR, 2004). The Utah Division of Wildlife Resources (UDWR) describes the antelope habitat as substantial, but not critical because this habitat type covers an extensive area throughout the area (BLM 1996).

Significant raptor populations occupy areas near the Project Area on a year-round basis (BLM, 1996). Golden eagles, prairie falcons, and marsh harriers nest and winter in the crucial raptor habitat around the Cricket Mountains. Nesting pairs will use the same nest for different years (BLM, 1996); however, no known raptor nest sites exist within the proposed area of disturbance.

The three species of upland game include chukar partridge, sage grouse, and ring-necked pheasant. Chukar partridge range is located in the Cricket Mountains and falls within one half mile of the Project Area. No active strutting grounds or leks are located in the Project Area.

Direct impacts would include up to 11.7 acres of temporary habitat loss and four acres of permanent habitat loss as a result of the quarry; however, this loss would be inconsequential because of the abundance of similar habitat in the near vicinity. Also, some animals may avoid the Project Area during operations but would return at the end of quarrying.

Graymont employees will survey the Project Area to identify the presence of previously unidentified raptor nests. If present, these nests will be avoided during the nesting season. Indirect impacts will include the creation of new raptor habitat in the quarry walls. No residual impacts are projected.

3.3 Special Status Species

Graymont conducted a survey in 1996 in the near vicinity of the Project Area to identify the potential for special status species to occur. No federally-listed threatened or endangered plant species were identified at that time (BLM, 1996). Sensitive plants of concern that have the potential to occur in the Project Area include: inch-high milkvetch (*Astragalus uncialis*), compact cateye (*Cryptantha compacta*), ibex buckwheat (*Eriogonum nummulare* var. *ammophilum*), Tunnel Springs beardstongue (*Penstemon concinnus*), and Jones globemallow (*Sphaeralcea caespitosa*) (BLM, 1996). Inch-high milkvetch is known to occur at Long's Ridge about 25 miles north of the Project Area (BLM, 1996). Compact cateye is known to occur in western Millard County near the Desert Experiment Range, and ibex buckwheat is know to occur at Sand Pass about 40 miles north of the Project Area (BLM, 1996). Tunnel Springs beardstongue and Jones globemallow are known to occur in western Millard and Beaver Counties (BLM, 1996).

None of the sensitive plants species were located during the 1996 survey after walking linear transects in prior surveys of areas of high and moderate potential habitat (BLM 1996). There was low potential habitat for inch-high milkvetch in the surrounding area and potential habitat on limestone and dolomite outcrops for Jones globemallow (BLM 1996).

A second survey conducted in August 1998 adjacent to the Project Area did not identify any threatened, endangered, endemic, or sensitive plants or mammal species (Mt. Nebo Scientific 1998).

The UDWR designated a 41,600-acre area in the Warm Springs Field Office as crucial raptor nesting habitat (March 1-June 30). A portion of the Project Area, Section 30, T21S, R9W falls within this designated area. UDWR requires a 1/2 mile protected zone surrounding the nest of any raptor during the breeding season.

A survey to identify the presence or absence of ferruginous hawk and Western burrowing owl was conducted in the Project Area by SRK in May 2004. Neither species was present.

No direct, indirect, or residual impacts to special status species are projected to occur. Graymont will conduct an additional survey to identify the presence of special status species plants if the main Allsop Quarry is permitted for mining. If any listed species are identified, Graymont will work with UDWR to prevent impacts.

3.4 Soil Resources

About ~~106,600~~113,100 cubic yards of soil will be reclaimed from undisturbed sites and stockpiled for future reclamation. Figure 5 shows the location of the soil associations that will

be affected. The stockpile will be seeded to prevent impacts from wind and water erosion. Some of the proposed disturbed areas are heavily infested with cheatgrass. Graymont will place the top few inches of stockpiled soil on the bottom of the pile, and evaluate treating the stockpiled soil with an herbicide to reduce the spread of cheatgrass. Soil stockpiles will be seeded the first fall after the soil is salvaged. About six inches of soil will be placed over the west haul road disturbance. Very limited soil resources are present at the Allsop Quarry area. No indirect or residual impacts are anticipated to soil resources.

3.5 Slope Stability

The proposed Project will not affect slope stability of the quarry as described in Section 2.3.2.

3.6 Erosion Control

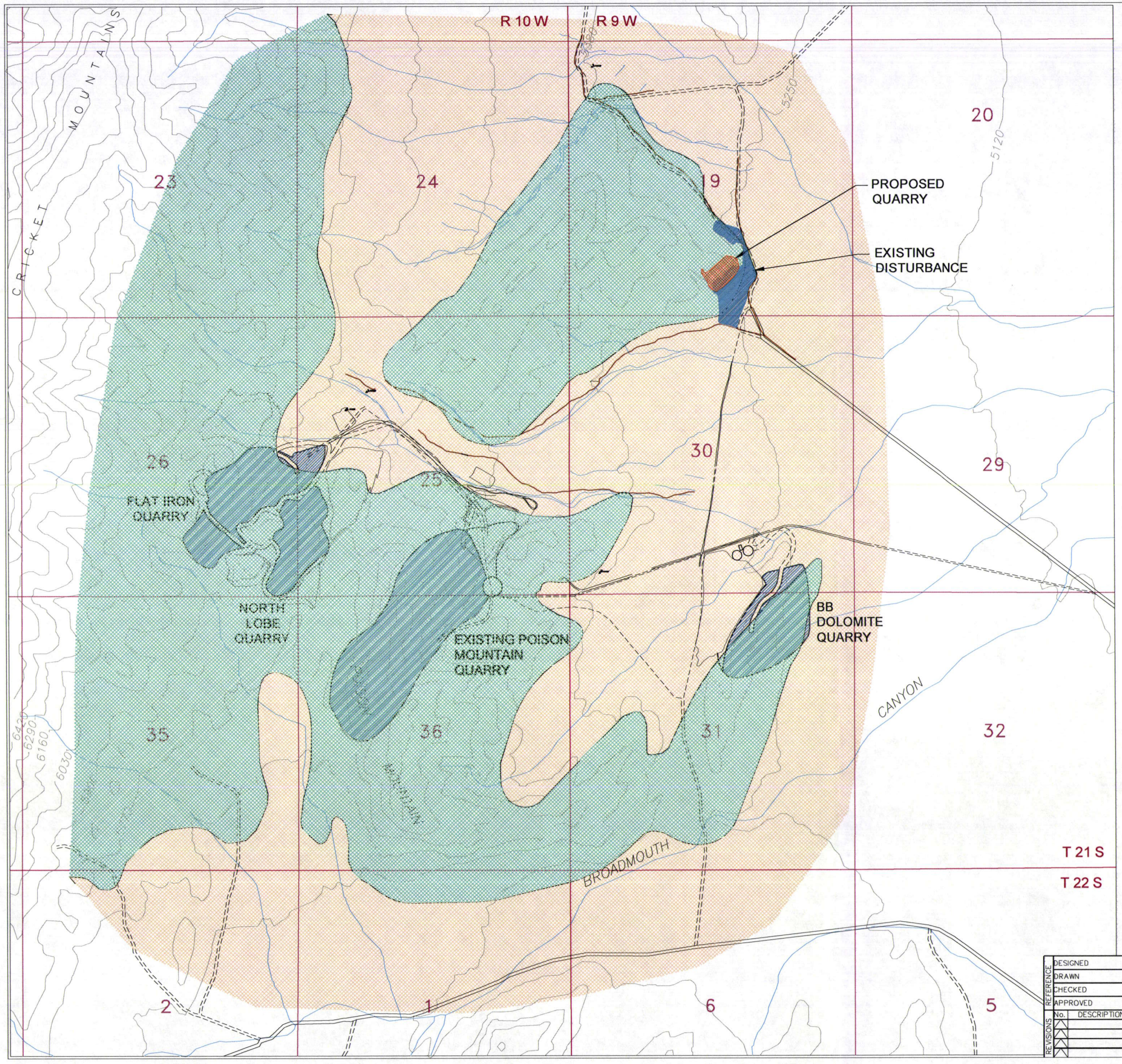
No impacts are anticipated from erosional processes. BMPs to control erosion are presented in Section 2.3.14.

3.7 Air Quality

Direct impacts to air quality will include the short-term increase in fugitive dust from quarrying and hauling. Graymont will use BMPs to control fugitive dust as used in the existing operations. No indirect or residual impacts are projected to occur to air quality. Roads will be maintained as described in Section 2.3.15.

3.8 Public Health and Safety

No direct, indirect, or residual impacts to public safety are projected. As described in Section 2.3.13, public access to the mining and haul road area will be limited to authorized individuals only.



EXPLANATION

EXISTING DISTURBED AREA

SOIL ASSOCIATION

AMTOFT - AMTOFT - VERY SHALLOW - LODAR

DERA - DERA SANDY LOAM

MODIFIED AFTER

0 1000 2000

FEET

REFERENCE			
	DESIGNED	VS	2/04
	DRAWN	draft	2/04
	CHECKED		
	APPROVED		

REVISIONS	No.	DESCRIPTION	DATE

FIGURE 5

GRAYMONT WESTERN
CRICKET MOUNTAIN PROJECT

ALLSOP QUARRY
SOIL ASSOCIATIONS

PREPARED BY:

SRK Consulting
Engineers and Scientists

SCALE: 1"= 2000'

REVISION

JOB NO. 57727

DWG NAME 57727-104

A

4. Reclamation and Closure

4.1 Introduction

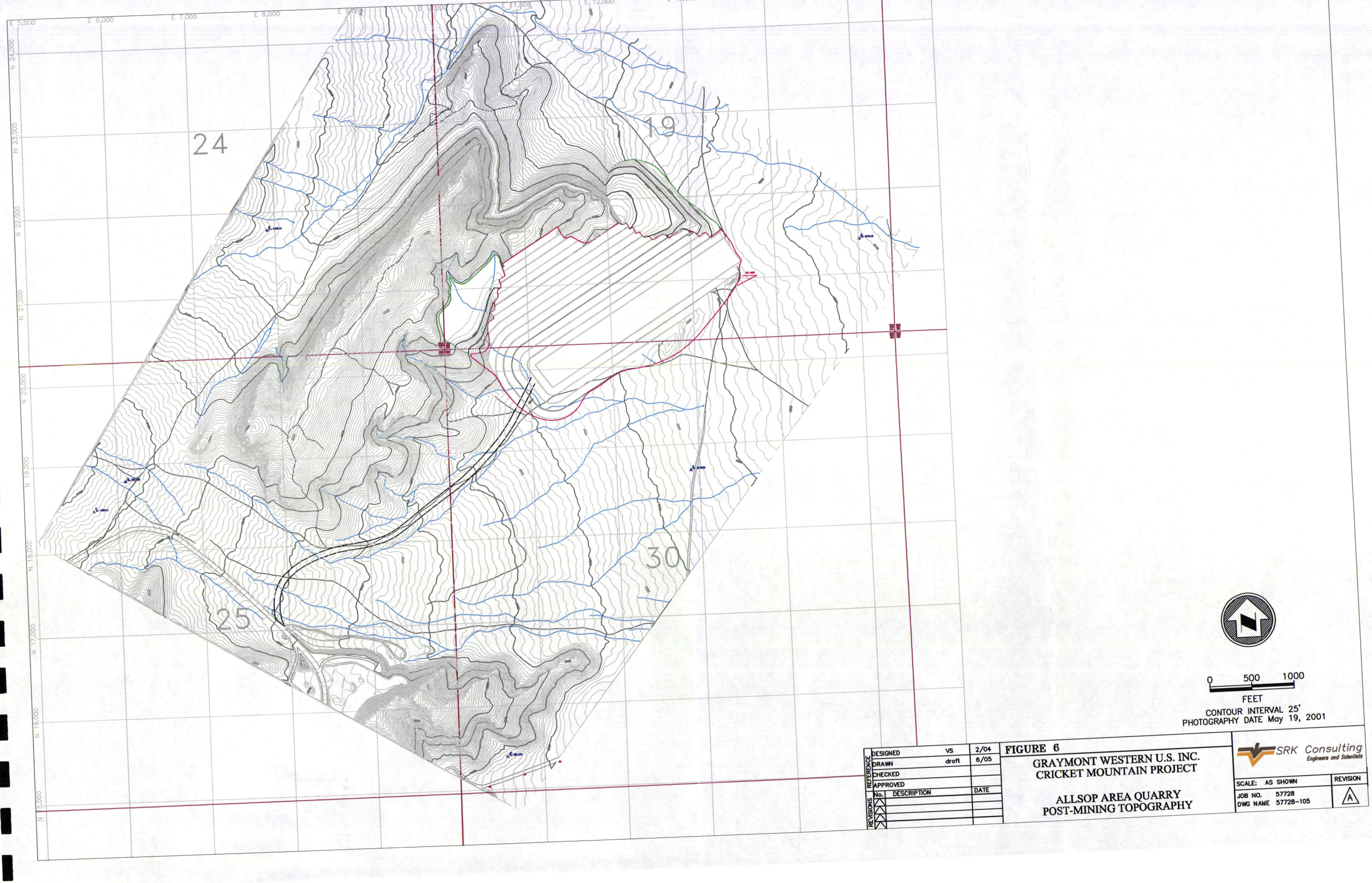
Reclamation of disturbed areas resulting from activities outlined in this NOI will be completed in accordance with federal and state regulations. The Utah Mined Land Reclamation Act of 1975, Title 40, Chapter 8 of the Utah Code Annotated states that "Mined land should be reclaimed so as to prevent conditions detrimental to the general safety and welfare of the citizens of this state and to provide for the subsequent use of the lands affected" (40-8-2).

Reclamation and closure of the proposed disturbance will be similar to that of the Cricket Mountain Mine (SRK, 1996). The Cricket Mountain reclamation plan has been developed with input from UDOGM and BLM and has been refined based on site specific operating experience over the life of the project. It is anticipated that reclamation and closure planning for the Allsop Quarry will be an ongoing process based on Graymont's continuing experience at the Cricket Mountain Mine and other operations.

The following subsections present a discussion of conceptual reclamation and closure of the Allsop Quarry and associated roads. Conceptual reclamation is shown on Figure 6.

4.2 Land Uses

Major land uses occurring in the Project Area include mining, wildlife habitat, grazing and recreation. Following closure, the Project Area will continue to support the same land uses. All post-closure land uses are in conformance with the Millard County zoning ordinances.



0 500 1000

FEET

CONTOUR INTERVAL 25'

PHOTOGRAPHY DATE May 19, 2001

REFERENCE			
	DESIGNED	VS	2/04
	DRAWN	draft	6/05
	CHECKED		
	APPROVED		

REVISIONS	No.	DESCRIPTION	DATE

FIGURE 6

GRAYMONT WESTERN U.S. INC.
CRICKET MOUNTAIN PROJECT

ALLSOP AREA QUARRY
POST-MINING TOPOGRAPHY

SRK Consulting
Engineers and Scientists

SCALE: AS SHOWN

JOB NO. 57728

DWG NAME 57728-105

REVISION A

4.3 Reclamation Goals and Objectives

The goals of the Allsop Quarry reclamation program are to minimize disturbance to the environment and to restore disturbed areas similar to their pre-disturbance state. The objectives of the reclamation programs are:

- To minimize erosion damage and protect surface water resources through careful control of water runoff.
- To establish surface soil conditions conducive to the regeneration of a stable plant community through stripping, stockpiling and reapplication of soil material or screened undersize limestone and dolomite material.
- To revegetate disturbed areas with a diverse mixture of plant species in order to establish long-term productive plant communities compatible with existing land uses.

4.4 Summary of Disturbance

The disturbance related to the NOI is discussed in Section 2.1 and is summarized in Table 2.1. The areas to be disturbed can be divided into quarry, roads, and stockpiles. Graymont anticipates that the roads, with exception of haul roads within the quarry, and stockpiles will be reclaimed and revegetated as required. Highwall areas in the quarry ~~and quarry benches~~ will not be reclaimed. Quarry benches and floors will be reclaimed if sufficient soil resources are available, otherwise Graymont will request a variance.

4.5 Site Stabilization and Configuration

The Project site will be stabilized, to the extent practicable, to minimize future impacts to the environment and protect air and water resources. Stable areas of the quarry highwall will be left in place to provide nesting areas for birds. Erosion will be controlled by revegetation, the placement of riprap or other BMPs.

4.6 Site Specific Closure and Reclamation

4.6.1 Quarries

The limestone is comprised of competent material that forms cliffs in the surrounding area. Based on experience at the Poison Mountain Quarry and natural topographic features in the area, Graymont anticipates that highwalls constructed in limestone will be stable and left in place The slope angle of unstable areas or areas showing significant deterioration will be managed through selective blasting or other methods to mitigate safety hazards.

As discussed in Section 2.3.6, salvageable soil in the Project area is very limited. Quarry benches and floors will be reclaimed if sufficient soils are available. Berms will be used to restrict access to the highwall to prevent access to the highwall slopes. These safety measures will be constructed as the final lower layers are mined out. The access to benches no longer being used will also be restricted.

4.6.2 Roads

Haul road disturbance associated with this revision will be reclaimed as authorized by the *Notice of Intention to Revise Mining Operations East Allsop Quarry* dated June 2004. Reclamation for the previously authorized haul roads will include regrading and

scarifying compacted surfaces to a depth of at least two feet. The distance of the ripper shanks will not exceed three feet.

4.6.3 Overburden Disposal Areas

As salvageable soil in the Project area is limited, the overburden disposal terrace faces would be left at angle of repose and only the benches and tops would be covered with a layer of soil and seeded.

4.6.4 Drill Holes

Drill holes will be plugged in accordance with UDOGM rule R647-4-108.

4.7 Soil and Vegetation

The thickness of soil used during reclamation of the proposed project will depend on the amount of soil available. In general, the soils within the Amtoft-Amtoft very shallow-Lodar Association are thin and contain excessive quantities of gravel (in some cases greater than 60 percent) and reach bedrock at approximately 18 inches or less (SCS 1984). Soils within the Dera-Dera sandy loam association reach bedrock at greater than 60 inches but tend to contain greater than 35 percent gravel in subsurface horizons. A site reconnaissance performed by SRK in May 2004 confirmed that soils were generally shallow. Areas potentially containing greater salvageable depths of soils were noted during the survey and are shown on Figure 5. Sodic soils were not observed although SCS data indicated that these soils may be present. Table 4-1 presents a description of the soil associations in the Project Area that could be disturbed by the proposed activities. Vegetation normally associated with each soil series is also included. Graymont will remove all salvagable soils within the area of the proposed disturbance.

According to the *Soil Survey of Part of the Fairfield – Nephi Area* (SCS 1984), the proposed disturbance will impact soils of the Amtoft-Amtoft very shallow-Lodar and the Dera-Dera sandy loam soil associations.

4.7.1 Soil Balance

A preliminary soil balance was prepared to compare the soil quantities required for reclamation of the Allsop Quarry area components to the quantities of soil available. For the soil balance, the following assumptions were used:

- soil will not be borrowed or imported from off-site sources;
- quarry benches and floors will be reclaimed if sufficient soil resources are available;
- portions of haul roads that extend into the quarries will be reclaimed if sufficient soil resources are available; and
- an average depth of about six inches of soil will be placed on all remaining project components (except for the soil stockpile areas) to be reclaimed. Graymont will salvage available growth media.

Table 4-2 provides an estimate of the soil quantities involved.

Table 4-1: Soil Information

Soil Association	Soil Series	SAR	pH	Profile Description		Position on Landscape	Slope (%)	Depth to Bedrock (in)	Vegetation
				Depth (in)	Texture*				
Amtoft-Amtoft very shallow-Lodar	Amtoft	0-2	7.9-9.0	0-3	STXL	mountainsides	25-60	18	Utah juniper, black sagebrush, Douglas rabbitbrush, Nevada bluegrass
				3-8	STVL				
				8-18	STVL				
				18+	bedrock				
	Amtoft very shallow	0-2	7.9-9.0	0-3	GRVSL	ridges, mountainsides	15-40	10	littleleaf mountain mahogany, pinyon, Utah juniper, black sagebrush, Nevada bluegrass
				3-7	GRVSL				
				7-10	GRVSL				
				10+	bedrock				
	Lodar	0-2	7.9-9.0	0-3	GRXL	mountainsides, mountain tops	20-60	17	pinyon, Utah juniper, black sagebrush, bluebunch wheatgrass
				3-9	GRVL				
				9-17	CBVL				
				17+	bedrock				
Dera-Dera sandy loam	Dera	10-70	7.9-9.0	0-4	GRL	dissected alluvial fans	---	>60	shadscale, galleta, spiny horsebrush, Indian ricegrass, bud sagebrush
				4-20	GRVL				
				20-60+	GRVSL				
	Dera sandy loam	10-70	7.9-9.0	0-3	GRSL	dissected alluvial fans	---	>60	galleta, winterfat, Indian ricegrass, shadscale, sand dropseed, bud sagebrush
				3-14	GRVSL				
				14-60+	GRVL				

Source: SCS 1984; NRCS unpublished data

*Soil texture codes are based on the National Soil Information System classification. STXL = extremely stony loam, STVL = very stony loam, GRXL = extremely gravelly loam, GRVL = very gravelly loam, GRL = gravelly loam, GRVSL = very gravelly sandy loam, GRSL = gravelly sandy loam, and CBVL = very cobbly loam.

Table 4-2: Soil Quantities

Disturbance Activity	Acreage	Cubic yards of soil recoverable (6-inch depth[1])
Allsop Quarry	100.2	80,830
Overburden Disposal Sites	29.7	23,960
Undersize Stockpile	8.3	6,700
Kiln Stone Stockpile	2.0	1,610

[1] The depth of soils recovered will vary throughout the Project Area and will largely depend on topography and slope position. Although pockets of deeper soil may occur, six inches depth is likely the average depth to which soils may be recovered in the Project Area and is used for calculation purposes.

4.8 Revegetation

4.8.1 Seed Mixtures

Graymont will use the successful seed mix that was used in the Flat Iron Amendment. The seed mixtures to be used will be determined by commercial seed availability and UDOGM. The seed mix used in the Flat Iron test plots is shown in Table 4-3. Appendix A contains data regarding existing undisturbed vegetative cover in the vicinity of the proposed project.

Table 4-3 : Reclamation Seed Mix

Seed	Percentage	Lbs PLS in 12 lbs/ac basis
Hycrest' crested wheat grass	12	1.44
Luna pubescent wheat grass	24	2.88
Bozoisky Russian wildrye	24	2.88
Koshia Prostrata	4	0.48
Yellow sweetclover	12	1.44
Shadscale - VNS	12	1.44
Fourwing Saltbrush - VNS	12	1.44

4.8.2 Mulching and Fertilization

Mulching and other amendment requirements will be based on the experimental revegetation program and the reclamation experience obtained from reclamation of the Poison Mountain area.

Monitoring and evaluation of Graymont's Poison Mountain revegetation efforts commenced in 1996. Revegetation efforts took place on benches with limestone fines or growth media/topsoil media as support media for seeds. In some areas a limestone/growth media mixture was used. Treatments including mulching, fertilizing, and composting were used on

those areas with limestone fines. Benches with limestone fines and one or more treatments ranged from less than one percent to thirteen percent vegetation cover (WP Natural Resources Consulting, Inc, 2003). Benches that contained a mixture of limestone and growth media ranged from 14 to 21 percent vegetation cover. Those areas with growth media/topsoil had vegetation cover of 34 percent (WP Natural Resources Consulting, Inc, 2003). See Table 4-4. In summary, those benches with the highest success rates contain growth media. Those areas that have a mixture of limestone fines and growth media did moderately well. Benches with limestone fines had the lowest success rates during the monitoring program. The success of various revegetation media is likely dependent on the water holding capacity of the media rather than soil amendments.

Table 4-4: Benches - Growth Media, Treatments, and Vegetative Cover

Bench	Growth Media	Surficial Treatment	Vegetative Cover
5920W	Limestone fines with growth media, growth media added in 1998	Limestone cobbles and uneven surface left	20 percent
5900W	Limestone fines with growth media, growth media added in 1998	Boulder placement, windbreak	16 percent
5880W	Six inches of growth media	Boulder placement, uneven surface	34 percent
5900W	Six to twelve inches of limestone fines with growth media	Primarily limestone fines, smooth surface	14 percent
5920W	Six to twelve inches of limestone fines with composted manure	Limestone fines and cobbles	10 percent (including two percent halogeton and cheat grass)
5880M	Six to twelve inches limestone fines mixed with growth media	Limestone cobbles, uneven surface left	21 percent
5880N	Six to twelve inches of limestone fines with composted manure	Limestone fines, smooth surface	13 percent (including three percent halogeton and cheat grass)
5900E	Limestone fines	Straw mulch, NPK fertilizer	1 percent
5940E	Limestone fines	Straw mulch, NPK fertilizer	2 to 3 percent
5940W	Limestone fines	Straw mulch, NPK fertilizer	Less than 1 percent
590W	Limestone fines	Straw mulch, NPK fertilizer	Less than 1 percent
5940NW	Topsoil over limestone fines	Hay, NPK fertilizer	23 percent (including three percent cheat grass)

Source: WP Natural Resource Consulting, Inc, 2003

4.8.3 Seeding and Planting

Seeding methods utilized at the site will depend on many factors including the topography, soil conditions, and seed mixture. Typically, some combination of broadcast seeding, drill seeding and hydroseeding is used for mine reclamation. Seeding will take place in the fall,

October or November. Compacted soils will be ripped to a depth of two feet prior to seeding. Uncompacted areas requiring revegetation will be scarified as needed to create a suitable seedbed.

4.9 Reclamation Schedule

Regrading and reclamation will take place in all areas permanently decommissioned prior to final closure. Final reclamation will begin after mining on all remaining disturbed areas. Reseeding will be performed in October or November.

4.10 Monitoring

Monitoring will be conducted to check revegetation success and erosion control. Monitoring will take place periodically during the growing season and following extreme storm events.

Revegetation success will be determined by monitoring the amount of ground cover, and comparing this value to one or more reference areas. Revegetation will be considered accomplished as per UDOGM Mineral Reclamation Rules (R-647-4) when the revegetation has achieved 70 percent of the pre-mining vegetation cover in the reference area. The survival of the vegetation for three growing seasons following seeding will be the time-criteria for defining revegetation success.

4.11 Concurrent Reclamation

Concurrent final reclamation will take place as soon as practical and safe after mining is completed. Portions of haul roads no longer required will also be reclaimed. Area disturbed by soil stockpiles will be reclaimed after the soil is used in reclamation of the above areas.

4.12 Interim Reclamation

In the event that continuous, full-scale production is interrupted due to economic considerations or unforeseen circumstances, interim reclamation may be initiated. Interim reclamation is outlined below:

- *Roads:* The haul roads will receive routine maintenance.
- *Quarries:* Berms or fences will be placed to help restrict access to quarry areas.
- *Erosion Control Measures:* All erosion control measures and BMPs will be regularly inspected and maintained.

5. Variance

Based on experience at the Poison Mountain Quarry and natural topographic features in the area, Graymont anticipates that highwalls constructed in limestone will be stable. Stable sections of the highwalls will be left in place. The slope angle of unstable areas or areas showing significant deterioration will be managed through selective blasting or other methods to mitigate safety hazards.

Graymont will request a variance to leave quarry benches and floors unvegetated if sufficient soil resources are not available.

6. Surety

UDOGM requires operators to provide a reclamation surety to the State. Appendix C presents the bond cost estimate for the Allsop Quarry. The bond totals $230,573; the spreadsheet contained in Appendix C present the bond calculations.

7. Signature Requirement

Based on reasonable inquiry, and to the best of my knowledge, I certify that the information contained in this document is true and correct:

_____

Michael R. Brown
Vice President, Environmental Affairs
3950 South 700 East, Suite 301
Salt Lake City, UT 84107

Date: _____

8. References

Mt. Nebo Scientific, Inc. 1998. T & E Species Survey Near the Cricket Mountains, Utah, August 1998.

National Resource Conservation Service formerly Soil Conservation Service (1984). Unpublished Department of Agriculture, Soil Conservation Service, *Soil Survey of Part of the Fairfield – Nephi Area*, Utah, June.

U.S. Bureau of Land Management, Continental Lime Inc., Modification to Plan of Operations, Cricket Mountain Project, Utah Environmental Assessment, April 1996.

USGS (1973). Candland Spring Quadrangle, 7.5 Minute Series Topographic Map, Scale 1:24,000.

Utah Division of Wildlife. 2001. Mammal habitat coverages, Pronghorn Habitat; shapefile and metadata, www.dwrcdc.nr.utah.gov/ucdc/downloadsgis/disclaim.htm. Update May 2003.

Western Cultural Resource Management, Inc. (WCRM). 2001. *A Cultural Resource Inventory for the Cricket Mountain Plant Amendment in Millard County*, February, 2001.

Western Cultural Resource Management, Inc. (WCRM). 2004. (Draft) A Cultural Resource Inventory of Approximately 246 Acres for the Cricket Mountain Plant in Millard County, Utah, March, 2004.

WP Natural Resource Consulting, Inc. 2003. *Assessment of Revegetated Test Benches and Reference Transects at the Cricket Mountain Plant,* June 2003.

Appendix A

Baseline Studies for the Allsop Quarry

A Cultural Resource Inventory of
Approximately 246 Acres for the
Cricket Mountain Plant in Millard County, Utah

For

Graymont Western U.S., Inc.

Prepared by
Robert R. Peterson Jr., M.A., RPA
and
Edward J. Stoner, M.A., RPA

Thomas J. Lennon, Ph.D. Principal Investigator

submitted by
Western Cultural Resource Management, Inc.
50 Freeport Blvd., Suite 15
Sparks, NV 89431

Utah Antiquities Annual Permit U-04-WE
WCRM Project Number 04R-004

March 16, 2004

WCRM

WESTERN CULTURAL RESOURCE MANAGEMENT, INC.

MANAGEMENT SUMMARY

Between February 25 and March 9, 2004, archaeologists from Western Cultural Resource Management (WCRM) performed a class III Cultural Resources Inventory of approximately 246 acres for the Graymont Western U.S. Cricket Mountain Mine. The area is a proposed mine expansion. The survey resulted in the identification of 11 isolated finds, including one prehistoric artifact, nine historic artifacts or features, and one 1937 section corner marker. Also noted were three indurated packrat middens. None of the isolated finds are considered eligible to the National Register of Historic Places (NRHP).

TABLE OF CONTENTS

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INTRODUCTION

A Class III Cultural Resources Inventory of approximately 246 acres was conducted between February 25th and March ninth in Millard County, Utah. The project is for the Graymont U.S. Cricket Mountain Mine and includes one large parcel, two proposed haul roads, and a small parcel for a wasterock disposal area. The project area is on private lands.

The cultural resource inventory was performed to federal standards and in light of mandates for protection of archaeological resources as set forth in the Antiquities Act of 1906, the National Historic Preservation Act of 1966 (as amended), the National Environmental Policy Act of 1969 (NEPA), and the Archaeological Resources Protection Act of 1979 (ARPA). The current project was conducted under State of Utah Antiquities Annual Permit # U-04-WE.

The Class III inventory was requested by Andrew Rupke, of Graymont Western US, Inc. Thomas J. Lennon of WCRM acted as principal investigator; Ed Stoner is the project manager. Robert R. Peterson Jr. was field supervisor and Jeremy Omvig was the field crew.

PROJECT LOCATION

The project area is located approximately 30 miles south of Delta, Utah (Figure 1). The mineral exploration project is located on the Candland Spring Quadrangle, Utah-Millard Co. 7.5' topographic quadrangle. The Parcel and roads, are located in portions of Sections 19 and 30 in T.21 S., R. 9W and portions of Sections 24 and 25 in T. 21 S., R. 10 W (Figure 2).

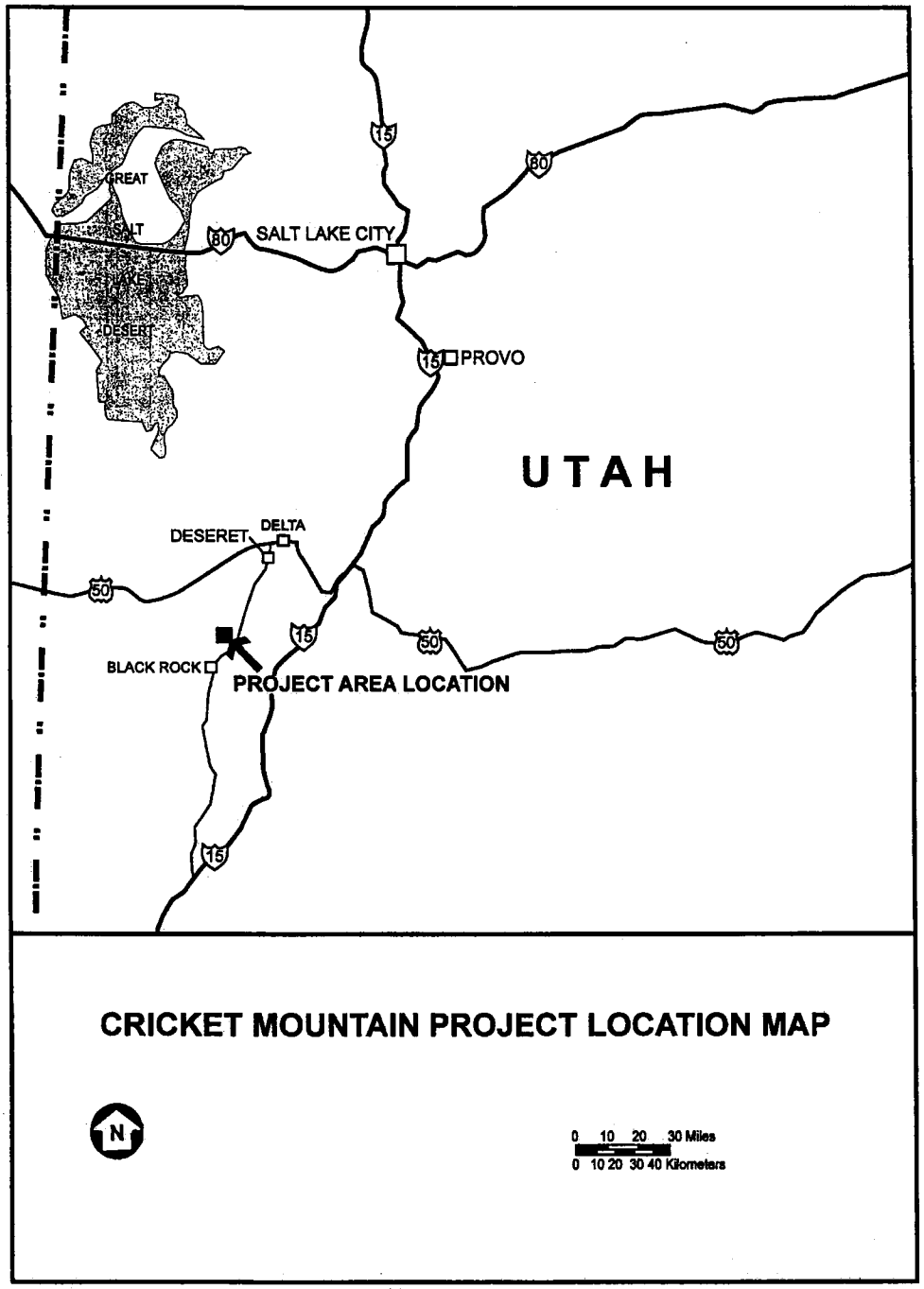
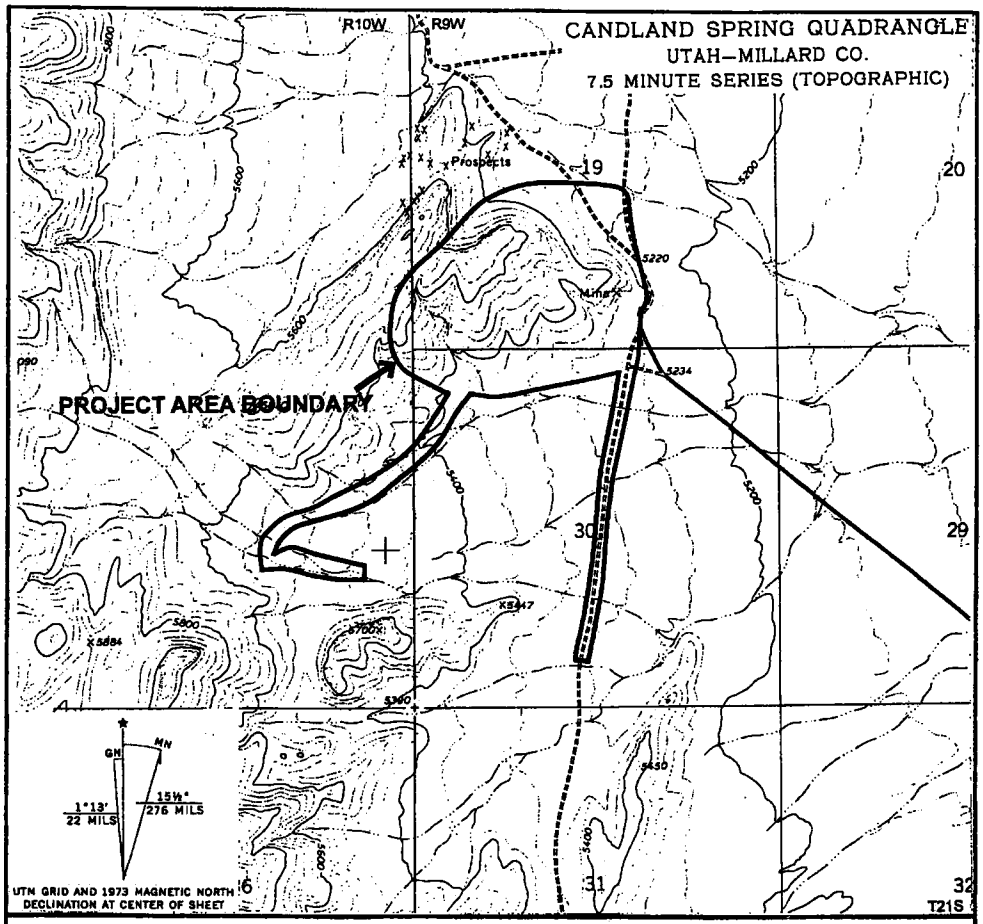

GREAT
SALT
LAKE
DESERT
SALT LAKE CITY
PROVO
UTAH
DESERET
DELTA
BLACK ROCK
PROJECT AREA LOCATION
CRICKET MOUNTAIN PROJECT LOCATION MAP
N
0 10 20 30 Miles
0 10 20 30 40 Kilometers

FIGURE 1



CRICKET MOUNTAIN
PROJECT AREA MAP

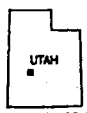
SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET



QUADRANGLE LOCATION

BACKGROUND

ENVIRONMENTAL SETTING

The project is located in the Black Rock Desert, a part of the larger Sevier Desert, in West-Central Utah. This area is in the Great Basin physiographic province. Both deserts are within the former boundaries of the Pleistocene Lake Bonneville (Snyder et al.1964). The lake reached its maximum elevation (depth) around 16,000 years ago and covered 19,970 square miles in Utah, Nevada, and Idaho (Grayson 1993:90). While the lake level declined at the end of the Pleistocene period and onset of the Holocene period, the Sevier sub-basin to the south (later referred to as Lake Gunnison) remained at higher levels than the more northerly Bonneville Basin (later referred to as the Great Salt Lake) and continued to flow to the north, crossing a divide called the Old River Bed, from 12,000 to 10,000 years ago (Grayson 1993:91).

Several vegetational zones merge near the sparsely vegetated project area. Low sagebrush and grasses characterize the alluvial fan and piedmont vegetation; shadscale and other salt-tolerant plant species are found along some valley floors. Pinyon and junipers sparsely vegetate the nearby Cricket Mountain Range. The climate is semi-arid with wide ranging temperature and precipitation variations from season to season and year to year.

The geology of the area is characterized by faults along the various north-south trending ranges. Volcanic eruptions continued in western Utah until as recently as 660 years ago (Utah Geologic Survey 2000). While igneous ranges are found in this area, the Cricket Range to the west contains sedimentary beds of high grade Paleozoic (570-240 million years ago) dolomite and limestones (Buranek 1945) frequently exposed on the surface of the rounded foothills.

PREHISTORY AND CHRONOLOGY

The project area is located within the Eastern Area of the Great Basin, one of six archeological/culture areas. The prehistoric sequence of Eastern Great Basin cultures has been subdivided into a series of temporal periods, mainly based on technological attributes of projectile points (Aikens and Madsen 1986) . These are briefly summarized below:

Bonneville Period (ca. 9000 to 7500 B.C.): This period correlates with the earliest human populations of this region. Tool technology is characterized by fluted points, crescents, and steep-edges scrapers and tools, and a paucity of grinding equipment. Early sites are often along pluvial lakeshores and riverine locations in upland areas.

Wendover Period (ca. 7500 to 4000 B.C.): This period is associated with the beginning of the Desert Archaic subsistence pattern, or small groups of foragers that moved around for most of the year, stored surplus for winter use, and exploited both large and small animals.

Archaeologically, material remains from this period include dart points such as Humboldt and Pintos, knives, and hammerstones. An increase in milling equipment is correlated with the increased importance of seed plants in the diet.

Black Rock Period (Early-4000-2000 B.C.): Archaeological sites increase dramatically with the early Black Rock Period and sites in upland locations are more frequent. As with the rest of the Great Basin, this shift in land use patterns is attributed to the mid-Holocene drought, increased temperatures, and dessication of playas and lakes (Aikens and Madsen 1986:158-159). Assemblages are similar to earlier periods with the exception of new projectile points such as Elko and Gypsum that gradually replaced the Humboldt and Pinto styles.

Black Rock Period: (Late- 2000 B.C. to A.D. 500): Increased use of higher elevation (uplands) continued. The later portion of this period is associated with the introduction of the bow and arrow which replaced the dart point and thrower (atlatl). Around A.D. 800, the appearance of ceramics, sedentary village sites with subterranean houses, and use of maize is attributed to the Formative Fremont (horticulturalists). The culture disappeared around A.D. 1300. A return to a hunter-gather lifestyle resumed thereafter.

THE HISTORIC PERIOD

Although early American explorers such as Jedediah Smith and John C. Fremont passed through this area, Millard County's early history is largely attributable to Mormon settlers. In 1849, the Church of Jesus Christ of Latter Day Saints (i.e., the Mormons or LDS) explored the regions south of Salt Lake City and passed through the Cove Creek area en route to southern Utah. By 1852, a Missouri newspaper reported that 11,236 men, women and children headed west from Fort Kearny in St. Louis. Another source mentioned 10,000 individuals traveled to Salt Lake City in 1852 (Holmes, ed. 1997:9). The Salt Lake City temple was completed in 1853 (Ricketts 1994:105). Two groups from Salt Lake City (30 families) settled the eastern Millard County area near Fillmore (Utah Collections 2000). As areas north and south of Salt Lake City were settled by LDS families, Brigham Young authorized Ira Hinkley to build a fort on Cove Creek (Cove Fort). The fort offered protection from Indians and also served as a way station for travelers along the "Mormon Corridor". Peaceful relations with the Indians lessened a need for a fort and thus by 1890, it was leased out and eventually sold (Cove Fort Museum n.d.).

Ranching and farming developed slowly in Millard County. Sheep and later cattle became major local industries during the first part of the twentieth century. Three-fourths of the state's alfalfa seed production comes from Millard County (Utah Collections 2000).

Mining

Compared to other areas in the West, Utah's mining industry developed slowly. Exploration for precious metals was initially discouraged by Utah leaders however, the rich mineral reserves did

not go unnoticed by prospectors en route to California or soldiers stationed at Salt Lake City (Smith 1985; Paul 1963). A paucity of rich placers required technological expertise and investment. The coming of the railroad marked a turning point for mining and reduced transportation costs, making exploration more feasible (Paul 1963:150). By the turn of the century, mining was an important part of Utah's economy. Citing information from *USGS Professional Paper 11*, Smith (1985:1) states that the total value of mineral production in Utah increased from $6 million in 1880, to $12 million in1890, and rose to nearly $100 million by 1917 (Smith 1985:1).

The demand for metals during World War II stimulated the study of strategic minerals such as iron, manganese, and tungsten. Utah's iron ore deposits were also investigated (Smith 1985:2). Early results were promising and with the help of Defense Plant Corporation officials, a new steel plant was established at Geneva, near Utah Lake. Around 1949, oil and gas possibilities were explored and Utah's first oil field at Ashley Valley Field was discovered (Smith 1985:2).

Mining and smelting are important economically to Millard County. Fluorspar, copper, manganese, sulphur, gypsum, beryllium, and salt are produced in significant quantities. As with the rest of the state, Millard County has unlimited sources of high-quality rock suitable for crushed stone (Tripp 1991:14). The Cricket Mountains contain a thick layer of Paleozoic limestones and dolomites exposed in both the low foothills and higher reaches of the range (Buranek 1945). Limestone and dolomites are quarried at the Cricket Mountain Plant (formerly Continental Lime, Inc.) and are used for crushed stone, cement, or dimension stone (Tripp 1991:16). In addition, the plant produces high-calcium lime from the Cambrian Dome Formation used for the scrubbing of sulfur dioxide smokestack emissions at the Intermountain Power Plant near Delta, Utah (Tripp 1991:17).

The Cricket Mountain Plant vicinity was first mined in the 1950s by owner Warren George Allsop (Allsop, personal communication 2000). U.S. Steel leased the property during the 1950s-1960s from Mr. Allsop and used the limestone for flux in the production of steel. Geneva Steel eventually purchased U.S. Steel and assumed the lease (Krukowski, personal communication 2000). Continental Lime, now Graymont Western US Inc., purchased the land from Warren Allsop's son, Rich Allsop.

LITERATURE SEARCH

In 2001 a cultural resources literature search was performed for a previous WCRM project in this same location. The data from that survey is used here. Six previous cultural resource inventories have been conducted in the immediate vicinity of the project area. Forty-three sites were recorded during the course of these studies. Beginning with the most recent inventory, the projects are listed as follows:

In 2001, Western Cultural Resource Management Inc. (WCRM) performed a Class III inventory

of roads and drill hole locations in the same general area as the present project (Kolvet and Mehls 2001). This survey recorded one historic refuse scatter. It was recommended as not eligible to the National Register of Historic Places (NRHP).

In 1996, Western Cultural Resource Management Inc. (WCRM) performed a Class III inventory of 968 acres for Continental Lime Inc.s' Cricket Mountain quarry expansion (Cunnar et al. 1997). Ten sites and 34 isolated finds were recorded as a result. At the request of the BLM and Continental Lime, 16 sites, previously recommended as eligible by Archaeological Research Consultants, were reevaluated. Seven of the ten newly recorded and two of the reevaluated sites were recommended eligible for the National Register of Historic Places (NRHP).

In 1995, V. Garth Norman of Archaeological Research Consultants inventoried 130 acres for expansion of the Cricket Mountain Quarry (Norman 1995). Of the four historic period sites recorded, one (42Md1180) was recommended eligible for nomination to the NRHP.

Two archaeological inventories were conducted in 1994 by V. Garth Norman of Archaeological Research Consultants for earlier expansions of the Cricket Mountain quarry (1994a, b). The first was a Class III inventory of 390 acres; the second was 500 acres. The first identified nine sites, included three prehistoric rock shelters, one lithic scatter, four sheep camps and a previously recorded lithic scatter. All five prehistoric sites were recommended eligible for nomination to the NRHP. The second inventory resulted in the recordation of eight prehistoric rock shelters, two open lithic scatters, and three sheep camps. All ten sites were recommended eligible for the NRHP.

The earliest inventory performed in conjunction with expansion of the Cricket Mountain quarry was also conducted by V. Garth Norman of Archaeological Research Consultants (Norman 1993). Seven open lithic scatters and five sheep camps were identified. None of the sites was recommended eligible for nomination to the NRHP.

METHODS

FIELD METHODS

The project area was walked by two archaeologists in parallel 30 m transects whenever possible. Some areas such as steep canyons or cliffs had to be examined by walking parallel or zig-zag transects down the length of the feature, watching for potential rockshelters or other areas of interest. Numerous such features were examined. The western haul road was surveyed by two persons walking up and back, covering approximately a 60 m (197 ft) wide corridor. The eastern haul road was covered by one archaeologist walking approximately 15 m either side of the existing dirt road, outside the disturbed area. This produces a corridor approximately 35 m (114 ft) either side of the road centerline. Site or isolate locations were recorded on USGS

topographic maps and were also recorded using a Magellen Sport Trak Map GPS unit using the NAD 27 Datum. This produces accuracy of 1 to 2 meters in areas such as this.

LABORATORY METHODS

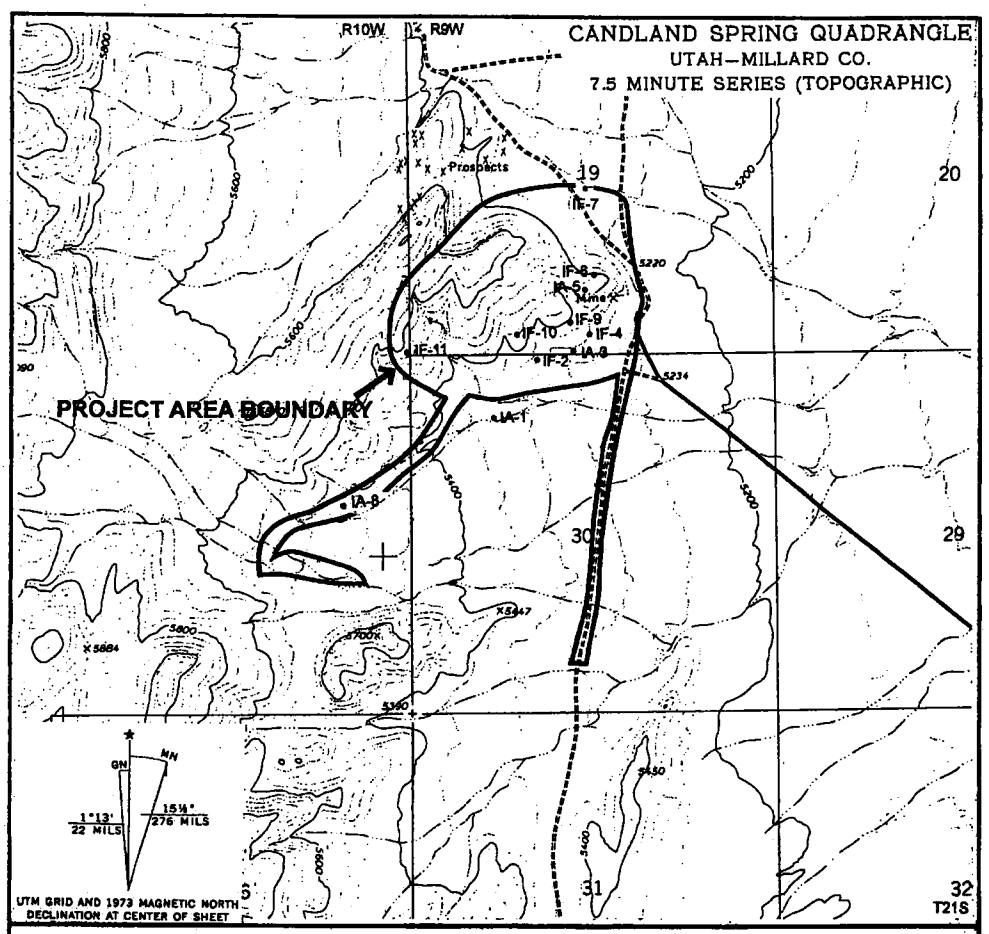
Since no artifacts were collected, laboratory methods consist mainly of film development, research of mining records, and preparation of the report. Graphics and maps were prepared for the report. The dates and purpose of diagnostic and non-diagnostic artifacts were researched using office references and additional information at the University of Nevada, Reno library.

SURVEY RESULTS

No prehistoric or historic sites were recorded during the survey. Eleven isolated finds; 9 historic features or artifacts, one prehistoric tool, and one 1937 section corner marker, were recorded. The historic features were all cairns. There were a number of can scatters on the project area which appear to be of recent origin. Those items recorded were identifiable as most likely more than 50 years old. There is a large quarry on the east end of the ridge in section 19, but it is less than 50 years old and it was not recorded. Table1 is a list of the isolated finds recorded in the project area. Several packrat middens were noted in cracks and shelters in the cliffs. These could be of interest because they might contain paleoenvironmental data.

Table 1. Cricket Mountain Isolates

Field ID	Agency No.	ZONE	UTME	UTMN	Description
IA01		12S	334448	4314292	Large split obsidian pebble.
IF02		12S	334653	4314545	Cairn. About 50 limestone rocks on top of outcrop. 1.4 m diameter x 0.2 m high.
IA03		12S	334817	4314582	3 cans. Hole-in Cap can, condensed milk can (squashed), Sanitary juice can opened with church key. On slope of ridge.
IF04		12S	334894	4314653	Cairn. C 1M diameter, 30 cm high. 50-60 rocks with hinged lid tobacco tin in it. 1 sanitary type key opened coffee tin next to it. On rocky slope of ridge
IA05		12S	334878	4314863	Hinged Lid tobacco tin. "IMPROVED TOP" on lid. On ridge slope.
IF06		12S	334917	4314928	Cairn. On bedrock at edge of north facing cliff. 10 large angular rocks, about 0.75 m diameter, 0.5 m high.
IF07		12S	334890	4315310	Cairn. On edge of drainage. C 10 mid-large rocks, about 0.4 m high and 0.5 m diameter.
IA08		12S	333758	4313915	Can and barrel hoops. Machine soldered Hole-in-Cap can, opened with can opener. Two small barrel hoops about 10 m north of the can.
IF09		12S	334805	4314714	Cairn. About 0.75 m x 0.5 m and about 15 rocks. There is one key opened crimped end meat tin in it.
IF10		12S	334564	4314667	Claim cairns. 3 cairns 0.5 m diameter and sanitary cans in each cairn. About 15 m apart on bedrock ridge finger
IF11		12S	334063	4314593	Large cairn w/section corner marker. Cairn is 1.5 m diameter and 1 m high with section corner marker in center. 1937 marker for sections 24/19/25/30.



CRICKET MOUNTAIN
ISOLATED ARTIFACTS & ISOLATED FEATURES
LOCATION MAP

IA- • ISOLATED ARTIFACT LOCATION

IF- • ISOLATED FEATURE LOCATION

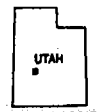
SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET



QUADRANGLE LOCATION

MANAGEMENT RECOMMENDATIONS

Management recommendations are based on the evaluation of a site's potential for nomination to the NRHP and potential impacts to that site that might result from the project. For sites that are not eligible for nomination to the NRHP, no further work is proposed. In general, eligible sites that will be impacted by a project receive a recommendation of **Adverse Effect**, with subsequent development and implementation of a suitable plan to mitigate the effects. Such a plan might include additional data recovery in the form of excavation or testing, photo documentation, artifact collection and analysis, and further historic research. For sites that are recommended eligible but will not be impacted by the proposed project, a determination of **No Historic Properties Affected** will be made.

RESOURCE RECOMMENDATIONS

In order to be considered as Eligible to the NRHP, a cultural resource must satisfy at least one of the four significance criteria as defined by 36 CFR part 60.4. The resource must contain:

36 CFR 60.4a	that are associated with events significant to broad pattern of history; or
36 CFR 60.4b	that are associated with the lives of persons significant in the past; or
36 CFR 60.4c	that embody the distinctive characteristics of a type, period, or methods of construction; represent the work of a master; possess highly artistic values; or represent a distinguishable entity whose components lack individual distinction; or
36 CFR 60.4d	that have yielded or may yield information important to history or prehistory.

The historic period resources must be significant under at least one of those four significance criteria (a-d) to be eligible for listing on the National Register (36 CFR 60; 36 CFR 63; National Register Bulletin 15). Furthermore, the Secretary of Interior's Standards and Guidelines (U.S. Department of the Interior, 1983) stipulate that the four criteria are to be applied within historic contexts. The contexts identify the thematic, geographical, and chronological framework within which the significance evaluation takes place, thus adding specific detail to the four criteria (see above).

Beyond the application of the above criteria, a resource must retain sufficient integrity to maintain the character that makes it significant, in order to be considered eligible for nomination

to the NRHP. Integrity can be physical or relate to integrity of place and setting in which the site's relationship to the surrounding landscape is considered.

RECOMMENDATION SUMMARY

None of the 11 isolated finds are considered eligible to the NRHP. No further work is recommended.

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APPENDIX

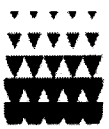
SITE DOCUMENTATION

Appendix B

A Cultural Resource Inventory for the Cricket Mountain Plant Amendment in Millard County, Utah

Graymont Western U.S., Inc.
Cricket Mountain Project, Utah

Baseline Studies for the East Allsop Quarry



GRAYMONT

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3950 South 700 East
Suite 301
Salt Lake City, Utah 84107

Prepared by:

Steffen Robertson and Kirsten (U.S.), Inc.
1250 Lamoille Highway, Suite 520
Elko, Nevada 89801

June 2004
SRK Project No. 57727

TABLE OF CONTENTS

GRAYMONT WESTERN U.S., INC.
CRICKET MOUNTAIN PROJECT
EAST ALLSOP QUARRY
BASELINE REPORT
MILLARD COUNTY, UTAH

1. INTRODUCTION

Graymont Western U.S., Inc. (Graymont) operates the Cricket Mountain Mine (Mine), an existing limestone mining and processing operation, located in west-central Utah. The Mine consists of a limestone quarry, overburden stockpiles, screened undersize material stockpiles, haul roads, a processing plant, and ancillary facilities located on unpatented mining claims on public lands administered by the United States Department of the Interior, Bureau of Land Management (BLM), on lands leased from the State of Utah, and on private lands owned by Graymont. The general location is shown on Figure 1. The Mine received approval of its Plan of Operations from the Warm Springs Field Office in Fillmore, Utah. A Notice of Intention (NOI) for the existing Project was approved by State of Utah, Division of Oil, Gas and Mining (UDOGM) on January 1, 1981 (M/027/006). Additional NOIs have been subsequently filed.

The Mine is located approximately 32 miles southwest of the city of Delta, in Millard County, Utah. The Cricket Mountain Plant is located west of Highway 257 near Bloom Siding in Section 36, Township 21 South (T21S), Range 9 West (R9W) and Section 1, T22S, R9W. The existing limestone quarry can be reached by traveling six miles west of the Plant (Figure 2).

Limestone from the East Allsop Quarry area was previously mined by the Interstate Brick Company. Approximately 19.9 acres within the Project Area were disturbed and never reclaimed. This quarry is accessed by a 20-foot wide road. Graymont has determined that a potential limestone reserve exists in the quarry area; however, the limestone will have to be proven by processing through the rotary kilns at the Plant to determine whether a saleable product can be produced. The purpose of the East Allsop Quarry is to provide the necessary material for establishing the suitability of the ore. Only a portion of the existing disturbance will be used.

In order to excavate and haul a sufficient quantity of limestone to the existing operations during the test period, Graymont will create a short road over existing disturbance from the quarry to the existing quarry road that will need to be widened by about ten feet. If the East Allsop material proves to be a saleable product, a haul road will be constructed from the existing Poison Mountain Quarry and crushing facility to the larger future Allsop Quarry area. Full-scale production will commence at the future Allsop Quarry area when permitted.

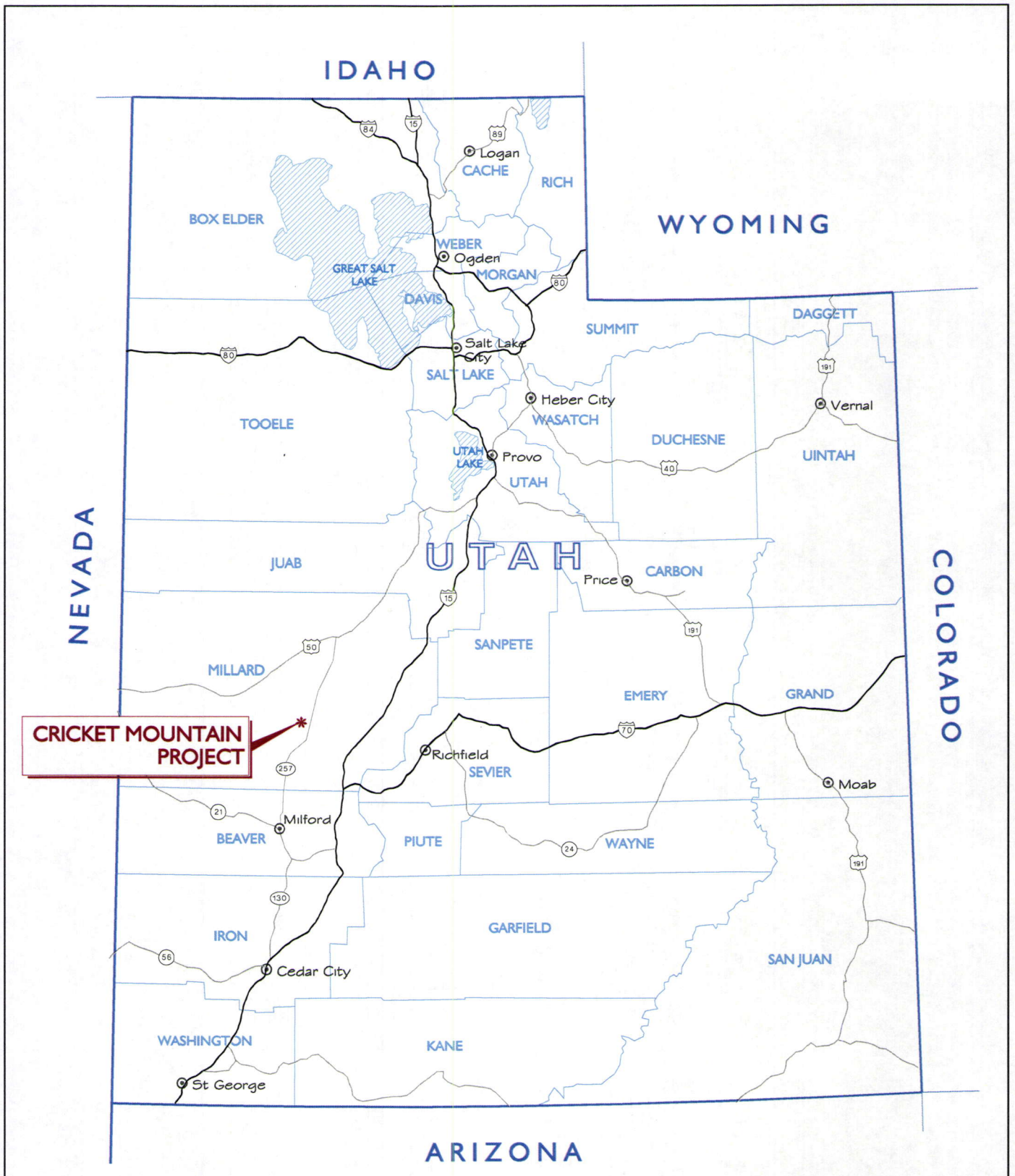
Development of the East Allsop Quarry and associated haul roads to the future Allsop Quarry will include the development of previously disturbed private land for a small quarry and haul roads. The current operations of the Cricket Mountain Mine will remain generally unchanged. The proposed facilities are located on private land and are shown on Figure 2.

The East Allsop Quarry and proposed roads will be located in sections 19 and 30, T21S, R9W, and Section 25, T21S, R10W, within the area of the U.S. Department of the Interior Geologic Survey (USGS) 7.5 minute series topographic map of the Candland Spring Quadrangle. Access to the existing quarry and plant facilities is by an improved unpaved road.

Elevations range from approximately 5,225 feet above mean sea level (amsl) to approximately 5,800 feet amsl. The area is characterized by a southeast-facing slope, dissected by several short drainages with steep side canyons, with rock outcrops common. Vegetation across this landform consists of native bunchgrasses, forbs, shrubs, and scattered juniper trees. A dense stand of cheatgrass with halogeton occurs in disturbed areas (previously burned areas) and the cheatgrass has become a component of the herbaceous layer in the undisturbed sites

SRK Consulting (SRK) was contracted to conduct baseline surveys of important resources on the subject land. The baseline surveys were conducted in preparation of any Notice of Intention modification approval. The following resources were included in the survey:

- Special status species;
- Noxious and invasive plants species;
- Wildlife, including raptor nest sites;
- Vegetation; and
- Soils



REFERENCE			
	DESIGNED	CB	1/04
	DRAWN	dftg	1/04
	CHECKED		
	APPROVED		

REVISIONS	No.	DESCRIPTION	BY	DATE

FIGURE 1

GRAYMONT WESTERN U.S. INC.

CRICKET MOUNTAIN PROJECT
MILLARD COUNTY, UTAH

GENERAL VICINITY MAP

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: AS SHOWN

REVISION: A

JOB NO. 57727
DWG NAME 57727-101

R 10 W
R 9 W
R 9 W
R 8 W
T 21 S
T 22 S
T 21 S
T 22 S
CRICKET MOUNTAINS
CRICKET SEEPS
FILLMORE WASH
FILLMORE CANYON
CRICKET VALLEY
BIG SAGE VALLEY
LITTLE SAGE VALLEY
POISON MOUNTAIN
BROADMOUTH CANYON
BIG SAGE RESERVOIR
HALLS DOUBLE RESERVOIR
UNION PACIFIC RAILROAD
ST. HWY. 257
Borden
Bloom
BEAVER RIVER
EXISTING DISTURBANCE
EXISTING QUARRY ACCESS ROAD
FLAT IRON QUARRY
NORTH LOBE QUARRY
EXISTING POISON MOUNTAIN QUARRY
BB DOLOMITE QUARRY
CRICKET MOUNTAIN PROCESSING PLANT

EXPLANATION

- PROPERTY BOUNDARY
- STATE LAND
- EXISTING QUARRY AND ASSOCIATED DISTURBANCE
- EXISTING QUARRY FACILITY
- EXISTING WASTE ROCK FACILITY
- EXISTING SOIL STOCKPILE

0 2000 4000
FEET

REFERENCE	DESIGNED	VS	3/04
	DRAWN	draft	3/04
	CHECKED		
	APPROVED		
REVISIONS	No.	DESCRIPTION	DATE

FIGURE 2

GRAYMONT WESTERN CRICKET MOUNTAIN PROJECT

EAST ALLSOP QUARRY EXISTING FACILITIES

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: 1" = 4000'
REVISION: B
JOB NO. 57727
DWG NAME 57727-102

1.1. SURVEY METHODS

1.1.1. Special Status Species

SRK contacted Mr. Paul Baker, (UDOGM) to determine which species were of concern. Based on previous surveys in the area, Mr. Baker indicated that the only species of concern were burrowing owls (*Athene cunicularia* ssp. *hypugaea*) and ferruginous hawks (*Buteo regalis*), and requested that the area be examined for potential nesting sites for these species. The field surveys consisted of traversing the subject land to determine if any nest sites for these two species were present.

1.1.2. Noxious and Invasive Plant Species

Mr. Baker (UDOGM) also mentioned that the area had been previously disturbed and that invasive plant species may be present. SRK conducted a field survey of the subject lands to determine if any noxious and invasive plant species were present. The survey consisted of traversing the property to identify emerging plants and remnants of last season's growth.

1.1.3. Wildlife

The area was surveyed for observation of wildlife species and/or their sign to determine which species are likely to inhabit the subject lands. Of particular interest were potential raptor nesting habitat, such as rock outcrops/ledges, juniper trees, ground nesting sites, and burrows.

1.1.4. Vegetation

The vegetation or plant communities were determined during the site visit. The dominant plant method was used to describe the various plant communities. Disturbed and undisturbed areas were field mapped.

As part of the baseline reference for reclamation activities, four line-intercept transects were established on the subject lands. Transects were placed parallel to the contour and spaced throughout the subject lands.

1.1.5. Soils

Mr. Baker (UDOGM) requested that SRK determine if any soils would be unsuitable for reclamation, especially the presence of any sodic soils. SRK used unpublished Natural Resource Conservation Service (NRCS) soil survey data for the area to determine the soil map units and reclamation suitability of the soils. In addition, the site visit was used to determine soil characteristics.

2. RESULTS

The field survey was conducted on May 22, 2004. SRK personnel were on site for approximately five hours. Weather during the survey was cloudy and warm, with late afternoon thunderstorms in the area, but not at the site.

2.1. SPECIAL STATUS SPECIES

During the on-site survey, no special status species were observed. Ferruginous hawk adults were not observed on the site. This species prefers to nest in isolated juniper trees or near the ground within the sagebrush. The juniper trees were examined and no nests were observed. No shrub nests were observed during the field work.

Burrowing owls nest in abandoned burrows created by other burrowing animals. The soils on much of the area were too shallow to bedrock to provide suitable habitat for this species. Areas of deeper soil generally had been subjected to wildfire and the vegetation suitable for burrowing owls was not present. Burrows observed during the survey did not reveal any active burrowing owl nests on the subject lands.

Several caves in the exposed rock cliff/rock outcrop areas were present and provide potential bat habitat. However, these caves were not examined for depth, air flow, or other factors that make them suitable as bat habitat. Desert woodrat (*Neotoma cinerea*) middens were observed in several of the openings; the presence of woodrats generally indicates that bats will not be present. In addition, the lack of water on the subject lands reduces the variety of foraging habitat for bats.

No special status species of plants were observed on the subject lands during the field survey.

2.2. NOXIOUS AND INVASIVE PLANT SPECIES

Noxious weeds were not observed during the site survey. A native thistle (white-flowered) was found scattered throughout the site but did not form patches where other species were excluded. Cheatgrass (*Bromus tectorum*), an invasive species was common throughout the area and dominated the southern and eastern portions of the subject lands. Halogeton (*Halogeton glomeratus*) was found in small patches at the base of the hills and as isolated plants within the cheatgrass-dominated areas. These areas appeared to have been burned in the past, and these drier slopes and canyon mouths converted to annual grassland.

2.3. WILDLIFE

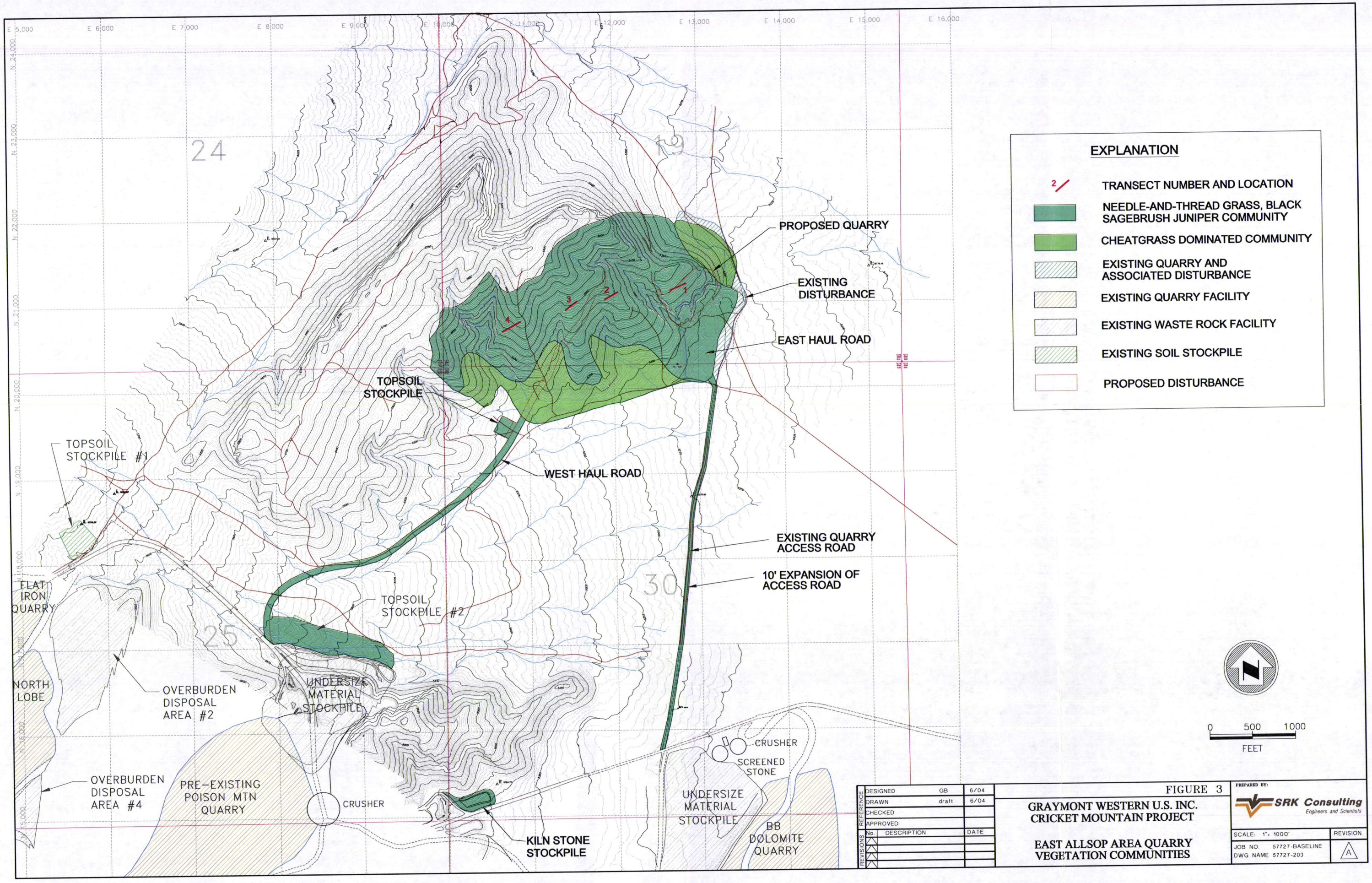
Species or their sign that were observed during the site visit included common raven (*Corvus corax*), rock wren (*Salpinctes obsoletus*), horned lark (*Eremophilia alpestris*), meadowlark (*Sturnella neglecta*), coyote (*Canis latrans*), mountain cottontail (*Sylvilagus nuttallii*), pronghorn antelope (*Antilocapra americana*), and sagebrush lizard (*Sceloporus graciosus*). Several other lizards and birds were observed on site but were not identified to species.

No live waters were observed on the site, limiting the use of the area by most wildlife species.

2.4. VEGETATION

Two major plant communities occurred on site (Figure 3). The site was primarily a needle-and-thread grass (*Hesperostipa comata* – black sagebrush (*Artemisia nova*) - Utah juniper (*Juniperus osteosperma*). Other grasses included bluebunch wheatgrass (*Pseudoroegneria spicata*), Galleta grass (*Pleuraphis jamesii*), Indian ricegrass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), bluegrass (*Poa* sp.), and cheatgrass. Forbs observed on site included globemallow (*Sphaeralcea ambigua*), daisy (*Erigeron* sp.), goldenweed (*Haplopappus stenophyllus*), allium (*Allium* sp.), phlox (*Phlox* sp.), and an unknown mustard. Common shrubs included curleaf mountain-mahogany (*Cercocarpus ledifolius*), ephedra (*Ephedra viridis*), rabbitbrush (*Chrysothamnus viscidiflorus*), horsebrush (*Tetradymia spinosa*), shadscale (*Atriplex confertifolia*), and cactus (*Opuntia* sp.).

Four point-intercept transects were used to determine the mean cover in the undisturbed area prior to any development. The transects were located in areas representative of typical vegetative cover in the area, with the exception of disturbed areas which are predominantly cheatgrass. The average plant cover was approximately 38 percent, with almost 18 percent from shrubs, 10 percent from grasses, and three percent from forbs. Annual grass (cheatgrass) accounted for almost eight percent of the cover; without this contribution, the plant cover would average about 30 percent. Juniper was widely scattered and did not occur in the transects, but probably accounts for between two and four percent of the total cover on the site, replacing the shrubs where it occurs.



REFERENCE	DESIGNED	GB	6/04
	DRAWN	draft	6/04
	CHECKED		
	APPROVED		
REVISIONS	No.	DESCRIPTION	DATE

FIGURE 3

GRAYMONT WESTERN U.S. INC.
CRICKET MOUNTAIN PROJECT

EAST ALLSOP AREA QUARRY
VEGETATION COMMUNITIES

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: 1" = 1000'

REVISION: A

JOB NO. 57727-BASELINE
DWG NAME 57727-203

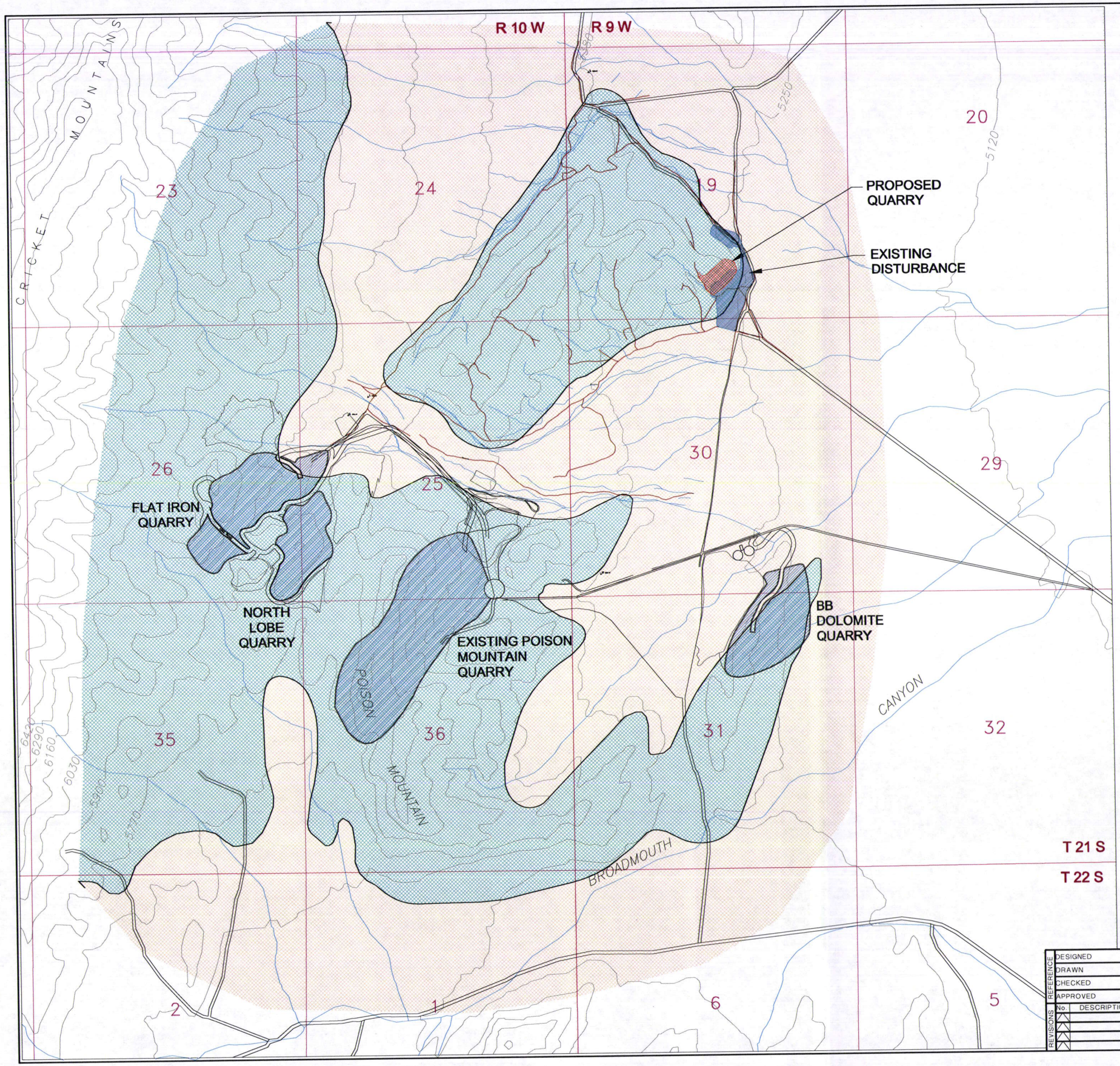
The second community was associated with the disturbed areas and consisted primarily of cheatgrass with halogeton in small patches. This community was prevalent at the base of the hill, extending into the canyons. No transects were established in the cheatgrass dominated areas as the amount of cover in these annual grasslands is quite variable between years due to moisture. However, in areas where the cheatgrass was quite dense the cover was ocularly estimated at approximately 65 percent. In less dense areas, the cover was estimated at approximately 35 percent. Photos from each transect and from the cheatgrass areas are included in Appendix A. Photo 8 shows the high-density cheatgrass observed.

2.5. SOILS

The purpose of the site visit with regard to soils was to generally verify unpublished NRCS (formerly SCS) (Figure 4) soil survey information reviewed prior to the site visit, and to assess potential restrictive soil features that influence reclamation and erosion control efforts. Soil samples were not collected.

In general, the soils within the Amtoft-Amtoft very shallow-Lodar association are thin and contain excessive quantities of gravel (in some cases greater than 60 percent) and reach bedrock at approximately 18 inches or less (SCS 1984). Soils within the Dera-Dera sandy loam association reach bedrock at greater than 60 inches but tend to contain greater than 35 percent gravel in subsurface horizons. The Amtoft-Amtoft very shallow-Lodar Association is found above the valley floor over bedrock and has angular cobble-sized material in addition to the gravel content. The deepest soils of this association were found on the convex slopes. The Dera-Dera sandy loam association is located on the valley floor areas and at the mouths of the short canyons. The soils of this association are fairly suited for use in reclamation; however, they are currently occupied by cheatgrass. Consequently, salvage of these soils is also likely to transport cheatgrass seed to the stockpiles, facilitating the establishment of cheatgrass during reclamation.

Areas potentially containing greater salvageable depths of soils were noted during the survey and are shown on Figure 5. Based on the vegetation on site, sodic soils were not observed. Species normally associated with sodic or highly sodic soils (e.g., saltgrass, greasewood) were not observed on the subject lands.



EXPLANATION

EXISTING DISTURBED AREA

SOIL ASSOCIATION

AMTOFT - AMTOFT - VERY SHALLOW - LODAR

DERA - DERA SANDY LOAM

0 1000 2000

FEET

MODIFIED AFTER

REFERENCE			
	DESIGNED	VS	2/04
	DRAWN	draft	2/04
	CHECKED		
	APPROVED		

REVISIONS	No.	DESCRIPTION	DATE

FIGURE 4

GRAYMONT WESTERN CRICKET MOUNTAIN PROJECT

EAST ALLSOP QUARRY SOIL ASSOICATIONS

PREPARED BY:

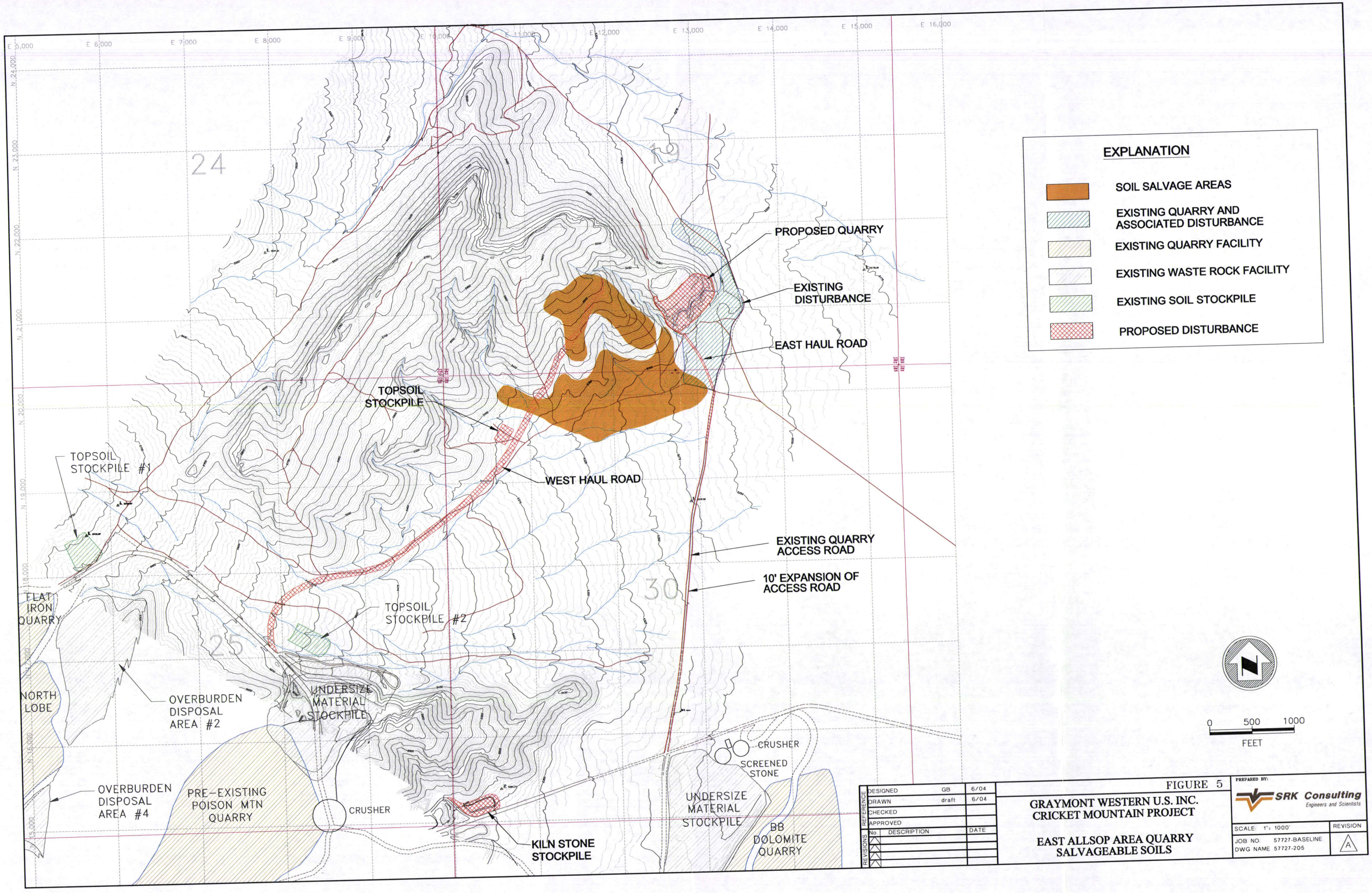
SRK Consulting
Engineers and Scientists

SCALE: 1": 2000'

REVISION: A

JOB NO. 57727-BASELINE

DWG NAME 57727-204



REFERENCE			
	DESIGNED	GB	6/04
	DRAWN	draft	6/04
	CHECKED		
	APPROVED		

REVISIONS	No	DESCRIPTION	DATE

FIGURE 5

GRAYMONT WESTERN U.S. INC.
CRICKET MOUNTAIN PROJECT

EAST ALLSOP AREA QUARRY
SALVAGEABLE SOILS

PREPARED BY:
SRK Consulting
Engineers and Scientists

SCALE: 1" = 1000'
REVISION
JOB NO. 57727-BASELINE
DWG NAME 57727-205
A

3. RECOMMENDATIONS

3.1. SPECIAL STATUS SPECIES

No modification of the proposed project is necessary with respect to special status species. No special status plant or animal species (or their sign) were observed during the survey.

3.2. NOXIOUS AND INVASIVE PLANT SPECIES

SRK recommends that Graymont should strip the top six inches of the valley bottom and canyon mouth soil (Dera-Dera sandy loam association) and discard this soil. This should remove the cheatgrass and cheatgrass seed from the soil surface and make the remaining soil better suited for reclamation. The soils thus salvaged should be seeded with an aggressive perennial species, such as crested wheatgrass, to reduce cheatgrass establishment during the period that the soils are stockpiled. Needle-and-thread and/or Indian ricegrass could be added to the interim seed mix, as both species were observed in this soil, and the plants were extremely robust.

Salvage of the soils within the Amtoft-Amtoft very shallow-Lodar association may be more difficult due to slope constraints, but these soils will also provide a suitable growth medium for reclamation. Stockpiles of this soil should also be seeded with an interim seed mix.

3.3. WILDLIFE

Removal of vegetation should be conducted between August 1 and March 30 to avoid possible violations of the Migratory Bird Treaty Act. This act prohibits the taking of migratory birds, their nests, eggs, or young. Therefore, all grubbing activities should take place in the non-nesting season.

3.4. VEGETATION

If certain plant species in the reclamation mix do not establish, SRK recommends considering needle-and-thread grass, Indian ricegrass, Galleta grass, bluebunch wheatgrass, globemallow, curleaf mountain-mahogany, and black sagebrush as substitution species. These species are currently on the site and are suited to the local conditions. Use of the salvaged soil will provide a growth media suitable for these species. Other species may be added to the reclamation seed mix, but the species listed above will provide the pre-mining land uses following mining.

3.5. SOILS

As stated in section 3.2, salvaging the soil should be conducted in a manner that will not facilitate the transport of cheatgrass seed for establishment on the stockpiles. Salvaged soils should be seeded with an interim seed mix of crested wheatgrass or other aggressive species to limit the establishment of cheatgrass.

SRK also recommends seeding the area immediately adjacent to the stockpiles and at the edge of the disturbance footprint with crested wheatgrass to create a barrier to movement of cheatgrass at the time of reclamation. This buffer of crested wheatgrass should be created during the active mining and allowed to establish during the mine development. In addition to reducing the amount of cheatgrass seed that migrates to the reclaimed surfaces, this cheatgrass strip will reduce the potential for wildfire moving onto the reclaimed surfaces. Crested wheatgrass remains green longer into the season than many native perennials and greens up early in the spring. The extended period of greenness is due to higher moisture content; therefore it is less likely to burner in the summer. This species is also fairly fire tolerant and will generally resprout following fire, thus keeping the soils in place and providing forage.

APPENDIX A

SITE AND TRANSECT PHOTOS

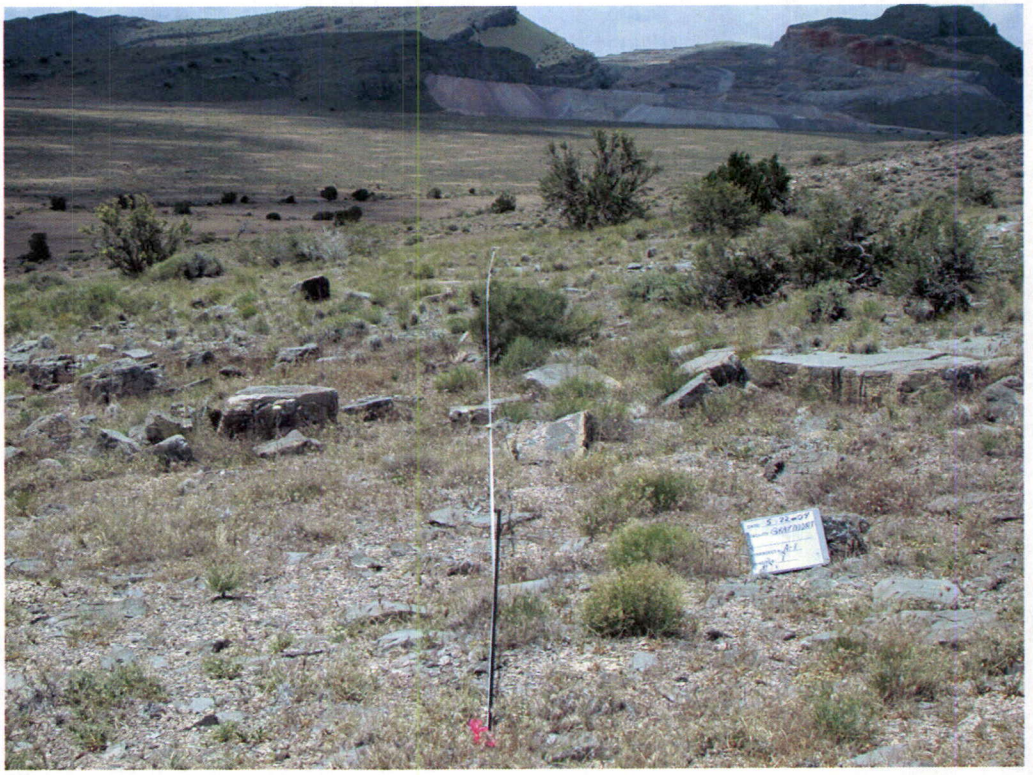


Photo 1: Transect 1 in area of shallow soil; black sagebrush/needle-and-thread grass/juniper community.

Photo 2: Transect 2; black sagebrush/needle-and-thread grass/juniper community.

Photo 3: Transect 3 in black sagebrush/needle-and-thread grass/juniper community.

Photo 4: Transect 4 in black sagebrush/needle-and-thread grass/juniper community.

Photo 5: Native thistle observed on site.

Photo 6: Cheatgrass and halogeton at the mouth of a canyon – area of potential soil salvage.

Photo 7: Cheatgrass and halogeton at the mouth of a canyon – area of potential soil salvage.

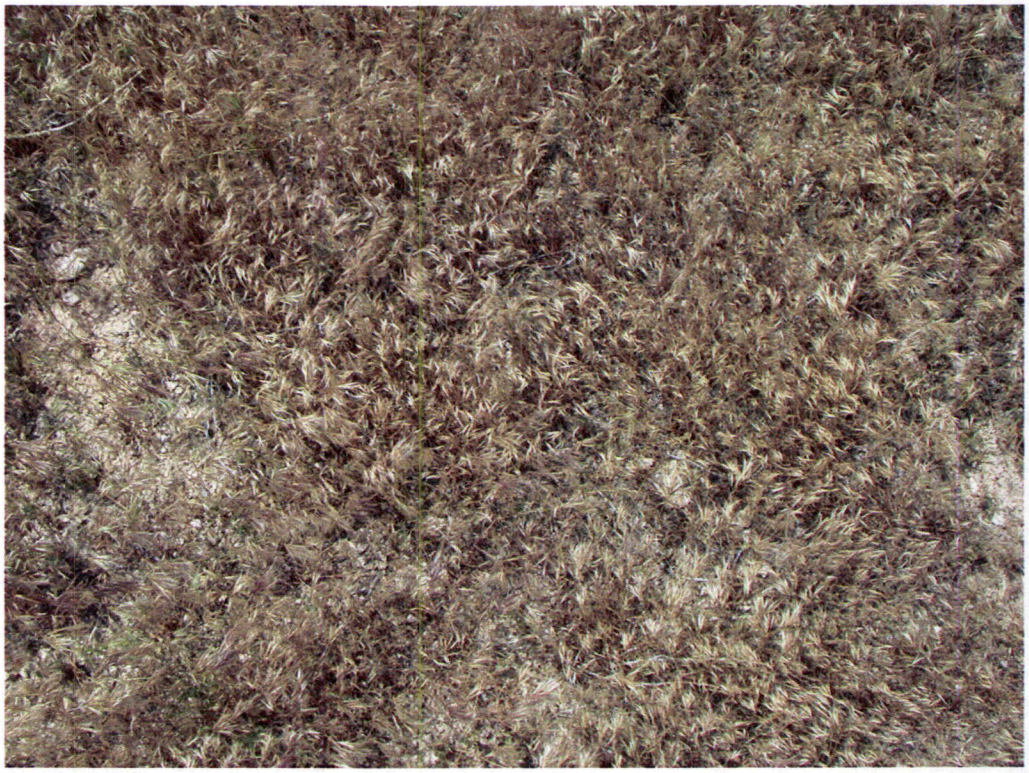


Photo 8: View of cheatgrass density – looking straight down at the ground.

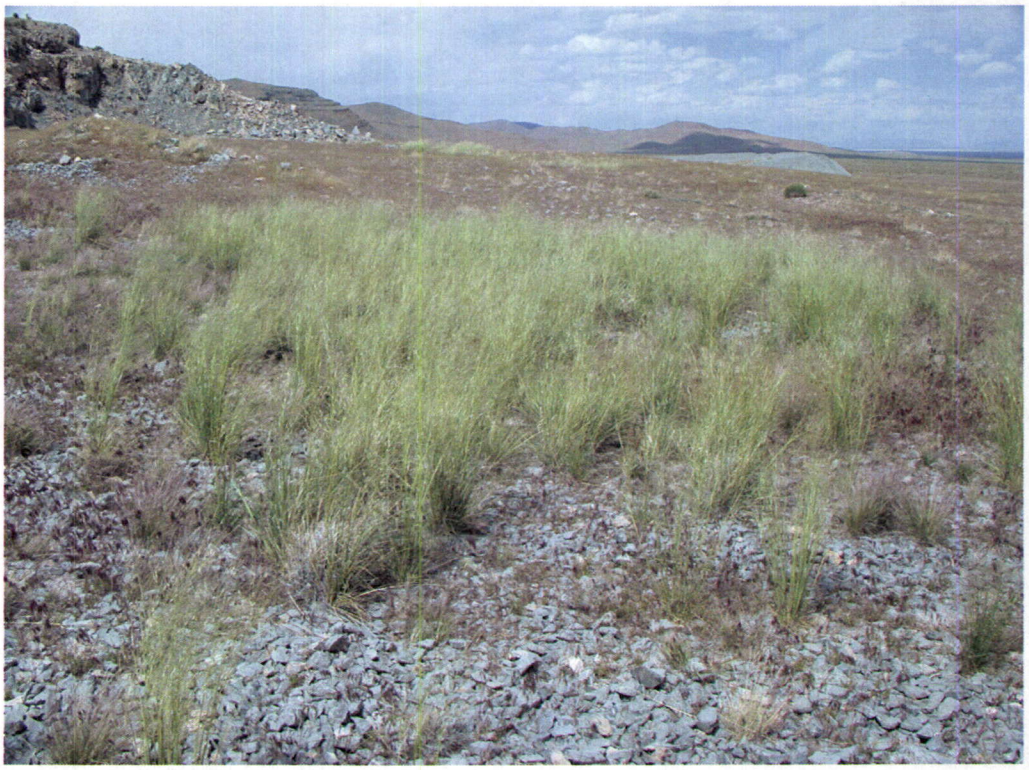


Photo 9: Needle-and-thread grass near the existing quarry.

Photo 10: Existing quarry and area of proposed quarry development.

APPENDIX B

VEGETATION TRANSECT DATA

POINT INTERCEPT METHOD SUMMARY FORM

SRK CONSULTING

DATE: 5/22/04 SITE: GRAYMONT FACILITY: EAST ALKOP

OBSERVER: GNB LOCATION: Millard Co., UT

TRANSECT	GRASS SPECIES						FORB SPECIES						SHRUB SPECIES				BARE GRND/ LITTER
	HELO	PSSP	PLTA	POA	BRTE	MUGLT.	HAST	PHLOX	ERIG	Allium	CELE	ARNO	CHVI	EPHE	TETRA	ATCO	
01	7	3	10		7	2							5	4			67
02	5	1	2		13	4	1	2			3	4	1	6	2		56
03	4	1		1	3	1			1			11	5	5	5		63
04			3	2	8					1		13	2		4	1	66
05																	
06																	
07																	
08																	
09																	
10																	
TOTAL	16	5	15	3	31	7	1	2	1	1	3	28	13	15	11	1	247
MEAN % COVER	4	1.25	3.75	0.75	7.75	1.75	0.25	0.5	0.25	0.25	0.75	7.0	3.25	3.75	2.75	0.25	61.25
TOTAL MEAN COVER	38.75%; PERENNIAL GRASSES = 9.75 ANNUAL GRASS = 7.75 FORBS = 3.0% SHRUBS = 17.75																

NOTES:

POINT INTERCEPT METHOD FORM

SRK CONSULTING

DATE: 5/22/04 SITE: GRAYMONT FACILITY: EAST ALLSOP

TRANSECT NO. A+B OBSERVER: GNB LOCATION: MILLARD Co., UT

TRANSECT	GRASS SPECIES						FORB SPECIES						SHRUB SPECIES				BARE GRND/ LITTER
	HECO	PSSP	PLJA			BRTE	MUST.						ARNO	CHVI	EPHE		
A-1 01																	
	7	3	10			7	2							5	4		62
	HECO	PSSP	PLJA			BRTE	MUST.	HAST.	PHLOX			COGE	ARNO	CHVI	EPHE	TETRA	
B-1 02																	
	5	1	2			13	4	1	2			3	4	1	6	2	56
03				POA						ERIG							
																TETRA	
	4	1		1		3	1			1			11	5	5	5	63
04				POA							ALLium				ATCO	TETRA	
			3	2		8					1		13	2	1	4	66
05																	
TOTAL	16	5	15	3		31	7	1	2	1	1	3	28	13	15	11	247

ATCO 1

Appendix C

Reclamation Bond Cost

SRK Consulting
1250 Lamoille Hwy., Suite 520
Elko, Nevada 89801
(775) 753-4151

GRAYMONT WESTERN U.S., INC.
CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY
RECLAMATION COST SUMMARY

	SPREADSHEET/PROJECT COMPONENT	EQUIPMENT	LABOR	MATERIALS	TOTALS	PLAN VIEW ACRES
A	Overburden Piles	$32,360	$8,564	$3,016	$43,941	29.7
B	Stockpiles	$12,556	$4,073	$1,308	$17,937	13.9
C	Quarries	$29,481	$6,496	$3,649	$39,626	116.3
D	Haul/Access Roads	$9,421	$2,494	$762	$12,677	8.1
E	Miscellaneous	$1,278	$8,727	$34	$10,038	NA
	Subtotal	$85,096	$30,354	$8,769	$124,219	168.0
	Mobilization/Demobilization				$41,716	
	Subtotal	$85,096	$30,354	$8,769	$165,935	
	Contract Administration (8% of direct reclamation)	$6,808	$2,428	$702	$13,275	
	Bond Premiums (3.0% of direct reclamation)	$2,553	$911	$263	$4,978	
	Insurance (1.5% of direct manpower)		$455		$455	
	Contractor Profit (10% of direct reclamation)	$8,510	$3,035	$877	$16,593	
	Contingency (10% of direct reclamation)	$8,510	$3,035	$877	$16,593	
	Engineering, Design, and Construction Plan (6% of direct reclamation)	$5,106	$1,821	$526	$9,956	
	Indirect Costs (21% of Contract Administration)	$1,430	$510	$147	$2,788	
	Subtotal - Overhead	$32,915	$12,196	$3,392	$64,639	
	TOTAL COSTS	$118,011	$42,550	$12,161	$230,573	168.0
					$/acre	$1,372
	Total Proposed Bond				$230,573	

7.65% 10.60% 3.00%

Hourly Rates for Labor

SRK Consulting

Operator	Base Rate (1)	FICA (7.65% base)	SIIS (10.62%)	UIP (3% base rate)	Fringe (1)	Total ($)
Power Equipment Operator	$17.44	$1.33	$1.85	$0.52	$6.43	$27.58
Laborer	$10.82	$0.83	$1.15	$0.32	$2.64	$15.76
Foreman (2)	$17.66	$1.35	$1.87	$0.53	$6.43	$27.84

(1) Base rates with fringe are from http://www.access.gpo.gov/davisbacon/ut.html as per 10/14/2005 decision.
(2) Field supervisor wages equal to highest operator wages.

EQUIPMENT RENTAL RATE TABLE

EQIPMENT TYPE	HOURLY RATE	NOTES
CAT D10T BULLDOZER	$203.39	1,2
CAT D9R/T BULLDOZER	$156.55	1,2
CAT 325L EXCAVATOR	$66.50	1,2
CAT 631G SCRAPER	$165.61	1,2
CAT 16H MOTORGRADER	$109.24	1,2
CAT 992G WHEEL LOADER (14 CY)	$256.92	1,2
CAT 621E 8KGAL WATER WAGON	$124.20	1,2
CAT 769 HAUL TRUCK	$150.40	1,2
CAT CHALLENGER w/ seed drill	$94.75	1,2

NOTES: Costs based on hours used

1. SOURCE: BLM/Wheeler Equipment Rates, April 2005
   weekly rental rate/40 hours - without operator, with FOG
2. Hourly rate includes fuel/lube/wear costs and assumes fuel costs at $1.80/gal.

SEED COST ESTIMATE

SEED AMENDMENTS	APPLICATION RATE (lb PLS/ac)	COST ($/lb)	COST ($/ac)
Hycrest' crested wheat grass	1.44		
Luna pubescent wheat grass	2.88		
Bozoisky Russian wildrye	2.88		
Koshia Prostrata	0.48		
Yellow sweetclover	1.44		
Shadscale - VNS	1.44		
Fourwing Saltbrush - VNS	1.44		
Subtotal	**12.00**		
Total $/acre			**$89.00**
Total $/acre w/ 5.75% sales tax			**$94.12**
Broadcast Cost per Acre			**$104.76**
Total $/acre w/ 5.75% sales tax			**$109.88**

Seed cost estimate provided by Granite Seed Company of Lehi Utah
on February 2, 2006.
Individual seed unit costs were not provided.

EQUIPMENT MOBILIZATION TABLE

EQUIPMENT TYPE	RATE	Max Number	Total $
CAT D10T BULLDOZER (1)	$2,234.28	3	$6,702.84
CAT D9R/T BULLDOZER	$1,187.00	1	$1,187.00
CAT 325L EXCAVATOR	$576.40	1	$576.40
CAT 631G SCRAPER	$1,187.00	4	$4,748.00
CAT 16H MOTORGRADER	$796.40	1	$796.40
CAT 992G WHEEL LOADER (1	$4,552.84	1	$4,552.84
CAT 621E 8KGAL WATER WA	$1,107.40	1	$1,107.40
CAT 769 HAUL TRUCK	$1,187.00	1	$1,187.00
		Total	$20,857.88

(1) Includes disassembly to ship and re-assembly at site - 30 hours total as per Cast
(2) Includes disassembly to ship and re-assembly at site - 90 hours total as per Cast
(3) Costs for mobilization only. Costs to de-mob will be the same.

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY — Revised: 2/9/2006

EARTHWORK / RECONTOURING

I. CATERPILLAR D9R BULLDOZER - UNIVERSAL BLADE PUSH CAT

SRK Consulting

		PUSH CAT			
	Production Rate				
(a)	Material Density (lb/cy)	2600			
(a)	Average Dozing Distance (ft)	50			
(e)	Maximum Production for dozing distance (cy/hr)	2200			
	Correction Factors				
(b)	Operator	Average 0.75			
(b)	Material	Average 1			
(b)	Job Efficiency	50 min/hr 0.83			
(c)	Weight Correction	0.884615385			
(b)	Grade Correction	0 : 1 1			
(d)	Total Correction Factor	0.55			
	Corrected production (cy/hr)	1211			
	Cost Rates				
	Bulldozing	$156.55			
	Operator	$27.58			
	Total Equipment	$184.13			

(a) Assumed 96 lbs/cu ft
(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Determined using the Caterpillar Performance Handbook assuming a standard density of 2300 lb/cy : (2300 lb/cy)/ Actual Density) = Weight Correction Factor
(d) Total Correction Factor = Product (all correction factors)
(e) D9R will be used as a push cat and is reliant on the scrapers for production

::

EARTHWORK / RECONTOURING — Revised: 2/9/2006

II. CATERPILLAR D9R BULLDOZER - UNIVERSAL BLADE & MULTI-SHANK

		FLAT TERRAIN		SLOPED TERRAIN +3 : 1		RIPPING	
	Production Rate						
(a)	Material Density (lb/cy)	2600		2600		Ripper Width (ft)	7
(a)	Average Dozing Distance (ft)	100		150		Effective Ripping Width (ft	10
(b)	Maximum Production for dozing distance (cy/hr)	1300		950		Operating Speed (mph)	1
	Correction Factors					Travel Length (ft/ac)	4356
(b)	Operator	Average 0.75		0.75		Two passes required	0.5
(b)	Material	average 1	loose	1.2		Production rate (ac/hr)	0.61
(b)	Job Efficiency	50 min/hr 0.83		0.83			
(c)	Weight Correction	0.885		0.885			
(b)	Grade Correction	0 : 1 1	3 : 1	1.66			
(d)	Total Correction Factor	0.55		1.10			
	Corrected production (cy/hr)	716		1042			
	Cost Rates						
	Bulldozing	$156.55		$156.55			
	Operator	$27.58		$27.58			
	Total Equipment	$184.13		$184.13			

(a) Assumed 96 lbs/cu ft
(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Determined using the Caterpillar Performance Handbook assuming a standard density of 2300 lb/cy : ((2300 lb/cy)/ Actual Density) = Weight Correction Factor
(d) Total Correction Factor = Product (all correction factors)

EARTHWORK / RECONTOURING
III. CATERPILLAR D10T BULLDOZER - UNIVERSAL BLADE & MULTI-SHANK

		FLAT TERRAIN		SLOPED TERRAIN +3 : 1		RIPPING	
	Production Rate						
(a)	Material Density (lb/cy)		2600		2600	Ripper Width (ft)	7
(a)	Average Dozing Distance (ft)		100		150	Effective Ripping Width (ft	10
(b)	Maximum Production for dozing distance (cy/hr)		1800		1300	Operating Speed (mph)	1
	Correction Factors					Travel Length (ft/ac)	4356
(b)	Operator	Average	0.75		0.75	Two passes required	0.5
(b)	Material	compacted alluvium	1	loose	1.2	Production rate (ac/hr)	0.61
(b)	Job Efficiency	50 min/hr	0.83		0.83		
(c)	Weight Correction		0.884615385		0.884615385		
(b)	Grade Correction	FLAT	1	3 : 1	1.66		
(d)	Total Correction Factor		0.55		1.10		
	Corrected production (cy/hr)		991		1426		
	Cost Rates						
	Bulldozing		$203.39		$203.39		$203.39
	Operator		$27.58		$27.58		$27.58
	Total Equipment		$230.97		$230.97		$230.97

(a) Assumed 96 lbs/cu ft.
(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Determined using the Caterpillar Performance Handbook assuming a standard density of 2300 lb/cy : ((2300 lb/cy)/ Actual Density) = Weight Correction Factor
(d) Total Correction Factor = Product (all correction factors)

EARTHWORK / RECONTOURING - 631G SCRAPER
IV. CATERPILLAR 631G SCRAPER

		Resoil				
	Production Rate					
(b)	Capacity (cu. yd.)		31			
(a)	Average Haul Distance (ft)		2600			
	Cycle Time					
(b)	Loading Time (min)		0.6			
(b)	Spreading Time (min)		0.7			
(b)	Loaded Haul Time (min)	8% Grade + 2% RR	3.9			
(b)	Empty Haul Time (min)	-8% Grade + 2% RR	1.5			
	Total time (min)		6.7			
	Cycles per Hour	(min/hr)/(min/cycle)	8.96			
	Production Rate (cy/hr)	Capacity*(Cyc/hr)	278			
	Correction Factors					
(b)	Operator	Average	0.75			
(b)	Load Factor	Earth - Dry, Packed	0.9			
(b)	Job Efficiency	50 min/hr	0.86			
(c)	Total Correction Factor		0.58			
	Corrected production rate (cy/hr)		161			
	Cost Rates					
	Scraper		$66.50			
	Operator		$27.58			
	Total Equipment		$94.08			

(a) Internal estimation based on known spoil and topsoil pile locations
(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Total Correction Factor = Product (all correction factors)

EARTHWORK / RECONTOURING
V. CATERPILLAR 16 - H GRADER

Revised: 2/9/2006

		SCARIFYING	BLADING	
Production Rate				
(a) Blade/Scarifying Width (ft)		14	16	
(a) Eff. Blade/Scarifying Width (ft)		14	16	
(a) Operating Speed (mph)		1.5	2.5	
Travel Length (ft/ac)	(sf/ac)/eff. scar. width	3111	2722.5	
Production Rate (acre/hr)	(speed*dist)/trav. lgth	1.82	3.03	
Correction Factors				
(b) Operator	Average	0.75	0.75	
(b) Job Efficiency	50 min/hr	0.83	0.83	
(c) Total Correction Factor		0.62	0.62	
Corrected Production Rate (ac/hr)		1.13	1.88	
Cost Rates				
Grader		$165.61	$165.61	
Operator		$27.58	$27.58	
Total Equipment Cost		$193.19	$193.19	

(a) Scarifying will be performed on roads and storage areas where growth medium was not removed in construction.
(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Total Correction Factor = Product (all correction factors)

EARTHWORK / RECONTOURING
VI. CATERPILLAR 325L EXCAVATOR

Revised: 9-Feb-06

	DEMOLITION	REGRADING	
Production Rate			
(b) Capacity (lcy)		2.5 LCY	
Fill Factor		0.75	
Average Bucket Fill		1.88	
Average Production (Cat Handbook for 1.88 LCY bucket)		338 LCY/hr	
Job Efficiency		0.83	
Production Factor		0.5	
Average Production		140 LCY/hr	
Cycles per Hour			
Cost Rates			
Excavator ($/hr)		$66.50	
Operator ($/hr)		$27.58	
Total Operating Cost ($/hr)		$94.08	

(b) Acquired from the Caterpillar Performance Handbook, 35th Edition
(c) Estimations based on actual experience

::

VII. REVEGETATION / STABILIZATION

Revised: 2/9/2006

	SEED DRILLING		BROADCAST SEEDING	
Production Rate				
	Challenger 75D and Seed Drill		Manual Broadcast Seeder	
Effective Seeding Width (ft)		10		15
Operating Speed (mph)		2.5		0.75
Travel Length (ft/ac)	(sq ft/ac)/ (eff. seed width)	4356		2904
Seed Rate (lb/ac)		0		10
Corrected Speed - ave operator and effeciency (0.5)		1.3		
Production Rate (ac/hr)	Trav. Lgth/ (speed*dist)	1.5		1.0
Seed Equipment Rate		$0.00		
Amendment Equipment Rate				
Seed and Amendment Equipment Rate		$0.00		
Labor		$15.76		$15.76
Seed Mixture ($/ac)		$94.12		$94.12
Amendments ($/acre)				

VIII. EARTHWORK / RECONTOURING EQUIPMENT COMBINATIONS

Revised: 9-Feb-06

Equipment	Total Productivity	Total Cost Equipment/Hour	Total Cost Labor/Hour
Contour/Regrade Combinations			
1 D10R-3 each; D9R-1	5320	$766.72	$110.30
2 1-D9R; 1-16H Grader (all production from dozer)	716	$322.16	$55.15
3 1-D9R dumps 150 ft push	1042	$156.55	$27.58
Resoil / Fill Combinations			
1 631 Scraper-4 each; 16H Motor Grader; 8000-gallon Water Wagon; D9R Dozer-1 each	644	$738.56	$193.03
Rip			
1 D9R Dozer- acres per hour	0.61	$156.55	$27.58
Scarify Combinations			
1 Challenger with Disk- 1 each	1.5 ac/hr average	$0.00	$27.58
Fill Combinations			
1 631 Scraper-4 each; 16H Motor Grader; 8000-gallon Water Wagon; D9R Dozer-1 each	644	$738.56	$193.03

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY

SRK Consulting

Overburden Piles

Spreadsheet A

Overburden Pile Name	Map Acres	Flat Surface Acres	Map Slope Acres	Actual Slope Acres	Regrade Volume
West Overburden Disposal	12.2	0.0	12.2	13.2	0
East Overburden Disposal	17.5	0.0	17.5	18.9	0
Subtotal	29.7	0.0	29.7	32.0	0

Reveg acres 32.0

Revised: 2/9/2006

	Contour/Regrade	Resoil	Rip/Scarify	Fill	Seed/Amendments	TOTALS
Equipment	(1)	(2)	(3)		(4) & (5)	-
Quantity	0 CY	25,851 CY (6)	10.7 AC	0 CY	32.0 AC	-
Production Rate	1,042 CY/HR	644 CY/HR	0.61 AC/HR	644 CY/HR	1.5 AC/HR	-
Time Required	0 HR	40 HR	18 HR	0 HR	22 HR	-
Unit Cost						
Equipment	156.55 $/hr	738.56 $/hr	156.55 $/hr	$738.56 $/hr	$0.00 $/hr	-
Labor	27.58 $/hr	193.03 $/hr	27.58 $/hr	$193.03 $/hr	$15.76 $/hr	-
Seed	0.00 $/ac	0.00 $/ac	0.00 $/ac	0.00 $/ac	$94.12 $/ac	-
Cost/Unit Area ($/ac)	-	-		-	$105	-
Cost/Unit Volume ($/cy)	$0.00	$1.44	-	-	-	-
Equipment Cost	$0	$29,542.40	$2,818	$0	$0	$32,360
Labor Cost	$0	$7,721.28	$496	$0	$347	$8,564
Seed Cost	$0	$0	$0	$0	$3,016	$3,016
TOTAL COSTS	$0	$37,264	$3,314	$0	$3,363	**$43,941**

Manpower Sub-total		Equipment Sub-total		Material Costs			
Earthwork	$8,218	Earthwork	$32,360	Earthwork	$0	Total Cost ($/AC):	$1,479
Revegetation	$347	Revegetation	$0	Revegetation	$3,016	29.7 plan view acres	

(1) D10T Dozer and D9R Dozer, 1 each.
(2) Four Scraper, one Motor Grader, one water truck and one D9R.
(3) D9R. Benches and dump top will be ripped, appx. 1/3 of total reveg acres.
(4) Challenger w/ Drill Seeder
(5) A factor of 1.079 was applied to acreage to account for slope adjustment.
(6) Equals 6 inches of topsoil over entire dump reveg acres

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY

SRK Consulting

Stockpiles

Spreadsheet B

Revised: 2/9/2006

Facility Name	Acres
Kiln Stone Stockpile	4.0
Undersize Material Stockpile	8.3
Topsoil Stockpile #1	1.0
Topsoil stockpile #2	0.6
Total Acres	13.9

	Earthwork				Revegetation	
	Contour/Regrade	Resoil	Rip/Scarify	Fill	Seed/Amendments	TOTAL
Equipment	(1)	(2)	(3)	(4)	(5)	-
Quantity	0 CY	11,213 CY	13.9 AC	0 CY	13.9 AC	-
Production Rate	716 CY/HR	644 CY/HR	0.61 AC/HR	644 CY/HR	1.5 AC/HR	-
Time Required	0 HR	17 HR	23 HR	0 HR	10 HR	-
Unit Cost						
Equipment	156.55 $/hr	738.56 $/hr	0.00 $/hr	738.56 $/hr	$0.00 $/hr	-
Labor	27.58 $/hr	193.03 $/hr	27.58 $/hr	193.03 $/hr	$15.76 $/hr	-
Seed	0.00 $/ac	0.00 $/ac	0.00 $/ac	0.00 $/ac	$94.12 $/ac	-
Cost/Unit Area ($/ac)	-	-	$45.61	-	$105	-
Cost/Unit Volume ($/cy)	$0.00	$1.41	-	$0.00	-	-
Equipment Cost	$0	$12,556	$0	$0	$0	$12,556
Labor Cost	$0	$3,282	$634	$0	$158	$4,073
Seed Cost	$0	$0	$0	$0	$1,308	$1,308
TOTAL COSTS	$0	$15,837	$634	$0	$1,466	**$17,937**

Manpower Sub-total		Equipment Sub-total		Material Costs			
Earthwork	$3,916	Earthwork	$12,556	Earthwork	$0	Total Cost ($/AC):	$1,290
Revegetation	$158	Revegetation	$0	Revegetation	$1,308	13.9 plan view acres	

(1) D9R Dozer, 1 each;

(2) 631 Scraper, 4 each; 16H Motor Grader, 1 each; 8000 gal Water Wagon, 1 each; D9R Dozer, 1 each.

(3) Challenger with Disc.

(4) 631 Scraper, 4 each; 16H Motor Grader, 1 each; 8000 gal Water Wagon, 1 each; D9R Dozer, 1 each. Volume is equal to 2 feet of fill (to cover broken-up concrete) over one-fourth of plant site area.

(5) Challenger with Drill Seeder

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY

SRK Consulting

Quarries

Spreadsheet C

Facility Name	Acres	Revised:	2/9/2006
Allsop	116.3		
	0		
	0		
	0		
	0		
Subtotal Acres	116.3		

		Earthwork	Revegetation	
		Ripping	Seed/Amendments	TOTAL
Equipment		(1)	Tractor & Seed Drill	includes pit boulders
Quantity		39 ac	39 Acres	-
Production Rate		0.61 CY/HR	1.5 AC/HR	-
Time Required		64 HR	26 HR	-
Unit Cost				
	Equipment	$156.55 $/hr	$0.00 $/hr	-
	Labor	$27.58 $/hr	$15.76 $/hr	-
	Material	$0.00 $/ac	$94.12 $/ac	-
Cost/Unit Area ($/ac)		-		-
Cost/Unit Volume ($/CY)		$303.97		-
Equipment Cost		$10,019	$0	$29,481
Labor Cost		$1,765	$410	$6,496
Seed Cost		$0	$3,649	$3,649
TOTAL COSTS		$11,784	$4,058	**$39,626**

	Manpower Sub-total		Equipment Sub-total		Materials/Subcontracts Sub-total			
	Earthwork	$1,765	Earthwork	$10,019	Earthwork	$0	Total Cost ($/AC):	$340.72
	Revegetation	$410	Revegetation	$0	Revegetation	$3,649	116.3 plan view acres	

(1) Pit bottoms to be smoothed and ripped with D9R. Acreage equals 1/3 of selected pit areas.
(2) Total includes pit berms in following table.

PIT SAFETY BOULDER PLACEMENT			Allsop				Total
Loader	cat 992	Description	*Rk Berm*				
Capacity (cu yd)	14	Size of Boulder (diameter in ft)	*4*				
Average Speed (mph)	10	Boulder Density (ft^3/ton)	*6*				
Load, Dump, Maneuver Time (min)	0.6	Boulder Spacing (ft)	*6*				
Correction Factor	0.75	Pit Permiter Length (ft)	*9,575*				9,575
Operating Cost ($/hr)	$124.20	Haul Distance (ft)	*1,125*				1,125
Labor Cost ($/hr)	$27.58	Boulders to Move	1,596	0	0	0	1,596
		Hourly Production (# of boulders)	12.0	0	0	0	
		Total hours at 85% efficiency	156.7	0.0	0.0	0.0	156.7
		Total Labor Cost	$4,321	$0	$0	$0	$4,321
		Total Operating Cost	$19,462	$0	$0	$0	$19,462
		TOTALS	$23,783	$0	$0	$0	**$23,783**

$39,626	**TOTAL QUARRY RECLAMATION COST**
$6,496	Labor
$29,481	Equipment
$3,649	Materials

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY

SRK Consulting

Haul/Access Roads

Spreadsheet D

Facility Name	Acres	
West Haul Road	7.1	*disturbance assumed at 75 feet wide
Quarry Access Road	1	*disturbance assumed at 35 feet wide
Total	8.1	

Revised: 2/9/2006

	Earthwork					Revegetation	TOTAL
	Contour/Regrade	Resoil	Rip	Scarify	Fill	Seed	
Equipment	(1)	(2)	(3)	(4)	(5)	(6)	-
Quantity	0 CY	6,534 CY (7)	8.1 AC	8.1 AC	0 CY	8.1 AC	-
Production Rate	1,042 CY/HR	644 CY/HR	0.61 AC/HR	2 AC/HR	400 CY/HR	1.5 AC/HR	-
Time Required	0 HR	10 HR	13 HR	4 HR	0 HR	6 HR	-
Unit Cost							
Equipment	156.55 $/hr	738.56 $/hr	156.55 $/hr	0.00 $/hr	$/hr	$0.00 $/hr	-
Labor	27.58 $/hr	193.03 $/hr	27.58 $/hr	27.58 $/hr	$/hr	$15.76 $/hr	-
Seed	0.00 $/ac	0.00 $/ac	0.00 $/ac	0.00 $/ac	0.00 $/ac	$94.12 $/ac	-
Cost/Unit Area ($/ac)	-	-	$295.56	$13.58	-	$106	-
Cost/Unit Volume ($/cy)	$0.00	$1.43	-	-	-	-	-
Equipment Cost	$0	$7,386	$2,035	$0	$0	$0	$9,421
Labor Cost	$0	$1,930	$358	$110	$0	$95	$2,494
Seed Cost	$0	$0	$0	$0	$0	$762	$762
TOTAL COSTS	$0	$9,316	$2,394	$110	$0	$857	**$12,677**

Manpower Sub-total		Equipment Sub-total		Material Costs			
Earthwork	$2,399	Earthwork	$9,421	Earthwork	$0	Total Cost ($/AC):	$1,565
Revegetation	$95	Revegetation	$0	Revegetation	$762	8.1 plan view acres	

(1) D9R Dozer, 1 each; 16H Motor Grader, 1 each.
(2) 631 Scraper, 4 each; 16H Motor Grader, 1 each; 8000 gal Water Wagon, 1 each; D9R Dozer, 1 each.
(3) D9R Dozer, 1 each.
(4) Challenger with Disc., 1 each.
(5) D9R Dozer, 1 each.
(6) Challenger, 1 each; Drill Seeder, 1 each.
(7) Resoil volume of 6 inches.

CRICKET MOUNTAIN PROJECT - ALLSOP QUARRY

SRK Consulting

Miscellaneous

Spreadsheet E

SUMMARY	Culverts	Maintenance	Monitoring	TOTAL
Equipment	$792		$486	$1,278
Labor	$792	$135	$7,800	$8,727
Materials		$34		$34
TOTAL COST	**$1,584**	**$168**	**$8,286**	**$10,038**

A) REVEGETATION MONITORING AND MAINTENANCE

MONITORING

ASSUMES A RANGE SPECIALIST AT $65/HOUR FOR 40 HOURS PER YEAR FOR 3 YEAF $ 7,800

Truck / travel cost: 400 miles round trip/yr for 3 years @$0.405/mile $ 486

MAINTENANCE

PERCENTAGE OF OVERBURDEN PILE REQUIRING REVEG: 5%

Total Vegetation Acres	Acres to Reveg	Cost Per Acre	TOTAL REVEG COST:
32.0	1.6	$105	$168

*Assume 20% of maintenance cost is for materials, 80% is for labor. Assume hand-seeding.

B) CULVERTS

CULVERT REMOVAL (CAT 325L Excavator)	No. Culverts	$/culvert	$ labor/culvert	TOTAL CULVERT COST:
	4	$ 198.00	$ 198.00	$ 1,584.00